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NEW YORK SHELL CLUB NOTES No. 268 January 1981 Page 1

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 426, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, JANUARY 11, 1981, at 2:00 pm

PROGRAM: TURKO AND CAICOS, by Richard Goldberg

MINI-TALK: DISPLAY AND STORAGE, by Fred Cannon

DISPLAY CASE: An exhibit by Bruce Einsohn

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Morris Karl Jacobson
SCHOLARSHIP FOR MOLLUSCAN STUDIES

The Astronaut Trail Shell Club of Brevard County, Florida, offers a grant of $500.00 to a student who is registered for a Masters or Ph. D. degree in an accredited Florida college or university and is engaged in a research project, or preparing a thesis, dealing primarily with the natural history or systematics of mollusks.

Applicants should submit a brief educational resumé, an outline of the research project, the use to which the money will be put, and a letter of recommendation from his or her chief advisor. Applications should be mailed to Chairman of Scholarship Awards, Astronaut Trail Shell Club, P.O. Box EG-515, Melbourne, Florida 32935 before January 1, 1981. Applicants will be notified of the selection by February 1.

Members of the club or their immediate family are not eligible for this scholarship. Funds from the grant are to be used to defray expenses directly connected with the student's research project.

This scholarship is given in memory of Morris Karl Jacobson, who was an Honorary Life Member of the Astronaut Trail Shell Club and who made many scientific and popular contributions to malacology.

THE ASTRONAUT TRAIL SHELL CLUB OF BREVARD, INC.
Post Office Box EG-515, Melbourne, Florida 32935

HIGHLIGHTS OF THE NOVEMBER MEETING

Among the five guests at the meeting were Ed and Gale Nieburger, members of the Boston Malacological Club. Ed, who is vice-president of the BMC, was asked to address the meeting. He said that they made the trip -- all in one day, by car -- just to attend the meeting, and that the motivation came from browsing through back issues of Shell Notes during the summer. He also commented briefly on the shells he and Gale had brought to display. Most were miniatures from the beaches of Martha's Vineyard, and the others were chosen for the beauty of their structure.

Bill Old reported on the results of his talks with the American Museum about the possibility of holding a shell show in the building. The Museum suggested making the event an exhibit, for which several permanent display cases could be made available for a day or two. Almost half of those present indicated that they would participate. Ed Nieburger said that the BMC would happily enter a display. A tentative date of May 17 had been agreed on, but this was thought to be too close to the summer hiatus to be effective in bringing in new members. Bill will ask the Museum if the third weekend in October is suitable. The exhibit will be open to our members and friends to display. A letter will be published in a future issue of NOTES giving full details.

The speaker was member Harold Feinberg, who is also a worker in the Museum's department of invertebrates. His subject was "The Misadventures of a Land Shell Collector." Noting that it isn't possible to assemble a representative collection of the land shells of a region by buying or trading, he said, "The only way is to collect - so let's go collecting!" He then set out on an imaginary expedition, beginning with a display of his equipment, some of it chosen to cope with snakes, chiggers, fire ants, poison ivy, rain, and too much sun. He commented on his own misadventures with these hazards, which included being bitten on the finger by a copperhead. Among his other misadventures were his "delusions of grandeur" over "discoveries" that turned out not to be new. But he clearly considers the game worth the candle, since he offered a wealth of information on recognizing collecting spots, picking the right times to collect, uncovering the quarry, and handling the fruits of the search.

Milton Werner, Recording Secretary

1981 FLORIDA SHELL SHOW DATES:

January 16, 17, 18: Southwest Florida Conchological Soc., Fort Myers
January 29, 30, 31, February 1: Greater Miami Shell Club
January 30, 31, February 1: Sarasota Shell Club
February 6, 7, 8: Broward County Shell Club, Pompano
February 13, 14, 15: Palm Beach County Shell Club
February 20, 21, 22: Naples Shell Club
February 26, 27, 28: St. Petersburg Shell Club
March 5, 6, 7, 8: Sanibel-Captiva Shell Club

(Bill Old will be judging at Sarasota and at Naples.)

YOUR FUTURE IN THE SEA:

The American Littoral Society's 11th annual symposium will be held at the American Museum of Natural History on Saturday, March 28. Experts on the sea will speak and show films both afternoon and evening. For admission charges and other details contact American Littoral Soc., Highlands, N. J. 07732 (telephone 201:291-0055).

FOREWORD

Howard-Paul Wagner is a young and active amateur malacologist belonging to a study group in the Netherlands. The following article is his study of the Aporrhaidae, a small genus in the family Strombidae, which was published March 9th, 1980 in DE VERZAMELAAR ("The Collector"), publication of the Nederlandse Vereniging de Verzamelaar. The booklet was well received in the malacological department of the Rijksmuseum voor Natuurlijk Historie.

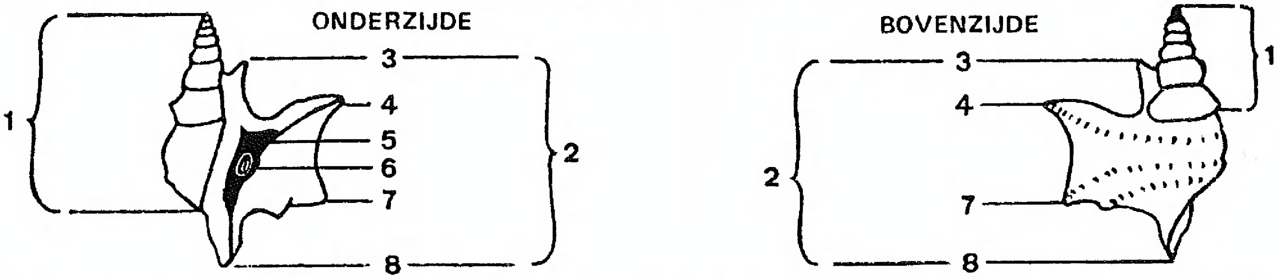
The original translation into English was by the author. It has been edited for the NEW YORK SHELL CLUB NOTES by Milton Werner.

Robert H. Janowsky

APORRHAIDAE

H. P. Wagner
Maystraat 107, 2593 VT Den Haag
Nederland

The always-interesting phylum of Mollusca is a group of animals showing variety in many ways. A variegated family within this group is the Aporrhaidae, better known under the name "Pelicanfeet" on account of their shape. The shells may not match other families for blazes of color, but in regard to shape they certainly are not inferior. On the contrary, the shells are conspicuously elongate and spiraled, the aperture extends into a siphonal canal, and the adult shells have a widely extended outer lip, or flag. The outer lips of the species in the genus Aporrhais are further projected into finger-like spines. The operculum, of horn-like conchiolin, is situated near the rearmost slope of the animal's foot.



Schematic drawing of the shell of Aporrhais pespelicani (Linné, 1758).

1. Shell body; 2. Flag; 3. First finger; 4. Second finger; 5. Aperture; 6. Operculum; 7. Third finger; 8. Fourth finger (Siphonal canal).

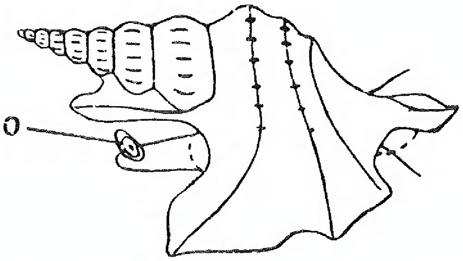
Fossil Aporrhaidae date back to the Jurassic Period (190-136 million years ago). It was in pre-history that the family enjoyed its greatest prosperity. Of its many species, only five have survived. One lives along the Atlantic coast of North America, and four along the European and northwest African coasts and in the Mediterranean. These four are the only representatives of the Strombacea in Europe.

Many subspecies have been named, but these are more likely variations representing differing environmental influences. Off our own Dutch coast lives the subspecies Aporrhais pespelicani quadrificus Da Costa, 1778, characterized by its thick shell. This thickness is the product of factors that include water temperature and the depth at which the animal lives, and that are different from those in the Mediterranean, where the main species lives.

For the taxonomy of the Aporrhaidae I use that of Gert Lindner, author of FIELD GUIDE TO SEASHELLS OF THE WORLD:

Class: Gastropoda
  Order: Mesogastropoda
    Superfamily: Strombacea
      Family: Aporrhaidae
        Genus: Aporrhais Da Costa, 1778
          Drepanocheilus Meek, 1864

As there is little known about the behavior of any of the Aporrhaidae except for A. pespelicani (Linné, 1758), the rest of this article will refer to the latter species.



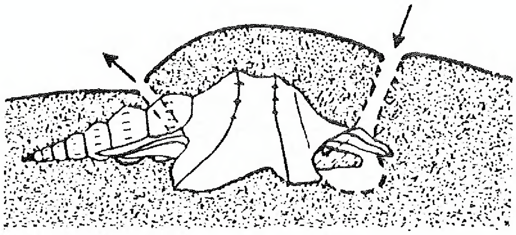
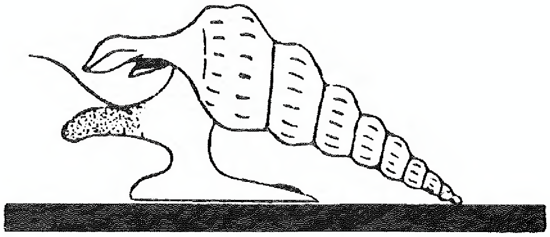


Fig. 2. Schematic drawing of live A. pespelicani, seen from the right side. O = operculum. From Yonge.
Fig. 3. Dug-in A. pespelicani. The arrows indicate inhalant and exhalant currents. From Yonge.

Aporrhais pespelicani lives on firm sandy or muddy gravel bottoms, spending most of its time dug in. (In contrast, A. serreseanus Michaud, 1828, is seldom below the surface of the soft sand and mud substrates it prefers.

Pespelicani buries itself by, as it were, ladling out bottom material with its flag, and then digging the rest of the shell in. When the highest point of the shell is about 5 mm below the surface, digging stops. A small mound of bottom material now covers the mollusk and its perpendicular excavation.

As soon as the animal has dug itself in, it uses its proboscis to clear a shaft to the surface for water intake. The shape of the shell creates a clear space ahead of the proboscis, in which it can move freely to search for food.



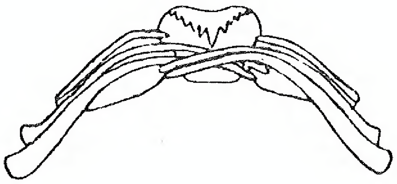


Fig. 4. A. pespelicani stretched upward to begin a "step." Body and shell will "fall" forward. From Yonge.
Fig. 5. Radular teeth of A. pespelicani, from left to right: two lateral, one marginal, the central, one marginal, two lateral (2-1-C-1-2). From Troschel.

Locomotion on the surface is accomplished by extending the body so as to lift the front end of the shell, after which the body and shell "fall" forward, and are followed by the foot. The animal's forward stretch of 10 mm can raise the shell fairly high, which is useful in getting over obstructions. The body stretches again, and the process is repeated. "Steps" can be as long as 8 mm. Each step takes 15 to 30 seconds. If the shell is turned upside down, the animal can turn itself upright again. It stretches the body and foot around the base of the shell, and when the foot touches the ground the shell can be rotated to normal position.

In the search for food, the proboscis moves about continually and the mouth explores the bottom. When food is located, the mouth opens and the food is gripped by the strong radular teeth.

The research of C.W. Yonge (1936-1937) proves that Aporrhais is an herbivore, and not a carnivore as was suggested previously on the ground of the shapes of the radular teeth. These radular teeth are for scraping algae and such. Aporrhais also feeds on diatoms, vegetable detritus, and other plant organisms that live in mud.

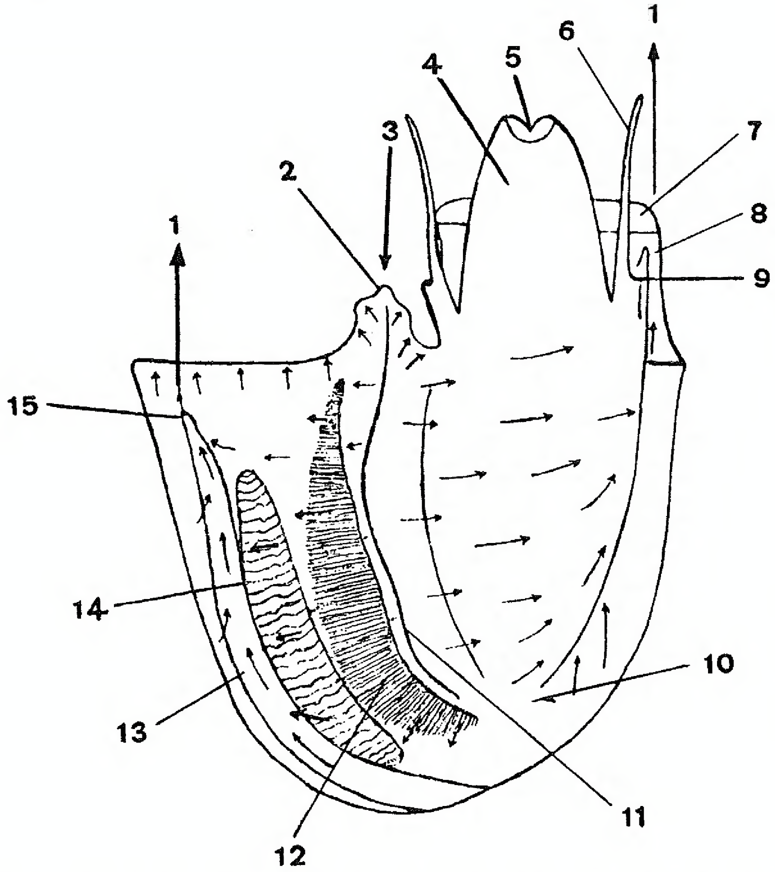


Fig. 6

Section of a male A. pespelicani cut open from the right side and seen from above.

1. Exhalant current
2. Siphonal extension
3. Inhalant current
4. Proboscis
5. Mouth
6. Tentacle
7. Anterior margin of foot
8. Penis
9. Eye
10. Opening of the male reproductive duct
11. Osphradium
12. Gill
13. Rectum
14. Hypobranchial gland
15. Anus

From Yonge

The inhalant current (3) goes along the osphradium (11) to the gills (12). The small arrows indicate the current, created by lateral filaments on the gill ligaments, which streams through the mantle cavity and supplies oxygen to the body. The current comes left of the head, where the mantle is stretched to form a siphonal extension (2) in the mantle cavity. To the left of the gills are the hypobranchial gland (14), rectum (13), and anus (15). The anus is positioned in the exhalant current (1), so that all waste leaves the body immediately.

Behind the head is the opening of the male reproductive duct (10). The penis (8) is at the right side of the head. (*Aporrhais* is sexually dimorphic.) At each side of the head is a tentacle (6) with an eye on the shoulder of the base. Between the tentacles is the proboscis (4), with the mouth (5).

> (The conclusion of this article, containing descriptions of the five living species of Aporrhaidae, will appear in our next issue. ...Ed.)

MORE ON CYPRAEA LISETAE Kilburn, 1975

Robert H. Janowsky

In the past few months I have been able to examine two additional specimens of *Cypraea lisetae* Kilburn, 1975 (see my article in NYSC NOTES No. 261, pp 6-7) and I am drawn to the conclusion that the above species is identical to *Cypraea maricola* (Cate, 1976). The species described by Crawford N. Cate almost one year after Kilburn's description is known today only from the holotype, which is deposited in the Los Angeles County Museum of Natural History as LACM No. 1706. The species is described in THE VELIGER *18*(4):383. This specimen is said to have been collected just below the high tide mark, Santa Cruz, Marinduque Island, Central Philippines.

I can find no differences between *Cypraea lisetae* Kilburn and *Cypraea* (*Pustularia*) *maricola* (Cate) and believe that the latter should be considered a synonym of the former. I also find it very surprising that additional specimens of this shell have not been reported from the Philippines, since the area in and around the Central Philippines has for some years been intensively collected. I also consider it curious that Cate reports the species from relatively shallow water, whereas *Cypraea lisetae* is collected *ex pisce* from fish taken at considerable depth.

The two additional specimens of *Cypraea lisetae* that I have been able to study are a 13.4mm specimen in the collection of Esmond Martin of New York, and a 14.2mm specimen excollection of Dr. R. Plotkin of Johannesburg, South Africa which is now in the collection of Mr. and Mrs. Michael Mulberger of Scottsdale, Arizona. Both specimens are in excellent condition and were collected *ex pisce*, the Martin specimen from off Punta Zavora, Southern Mozambique and the other off the Zululand coast of South Africa.

Photographs of *Cypraea maricola* may be found in Jerry G. Walls' COWRIES, 2nd edition, on page 257, and photographs of *Cypraea lisetae* on page 253.

IN HONOR OF WIVES

Conus juliae: Named by W. J. Clench in honor of his wife, Julia.

Donax dorotheae: Named by J. P. E. Morrison in honor of his wife, Dorothy.

Favartia dorothyae: Named by Emerson and D'Attilio in honor of Robert Janowsky's wife, Dorothy, who brought it to their attention.

Pecten dianeae: Named by Phil Crandall in honor of his wife, Diane.

MALACOPHAGY AMONG MARINE FISH

Harry G. Lee

The Brazilian cousin of our local toadfish has a striking appetite for gastropods. Henry Ramos Matthews (1968) tells us that the guts of pacamão [*Amphicthys cryptocentrus* (Valenciennes, 1837)] taken off Fortaleza have produced 84 species of snails vs. only five of clams. The number of fish examined was not stated, but it was probably great. These fish are usually taken by hook from rocky bottoms at 12 to 20 fathoms. *Cypraea surinamensis* Perry, 1811 and other highly regarded shells appear on Matthews' list. The pacamão produced the first *Morum matthewsi* Emerson, 1967 (named for its human discoverer) and *Bursa pacamoni* Matthews and Coelho, 1970 (after its original collector).

The most famous source of *ex pisce* (out of the fish) shells is indisputedly the musselcracker, *Sparodon durbanensis* (Castlenau), which occurs off SE Africa, where specimens up to 40 lbs. are taken by commercial anglers (Boswell, 1964). The fish come in from depths often in excess of 300 feet and are a (if not the most) consistent source of such rarities as:

Pirenella boswellae Barnard
Cypraea broderipii Sowerby, 1832
Cypraea fultoni Sowerby, 1903
Murex fallax E. A. Smith, 1901
Melampium elatum (Schubert & Wagner)
Vasum truncatum Sowerby, 1892
Festilyria ponsonbyi (E. A. Smith, 1901)
Festilyria quecketti (E. A. Smith, 1901)

and at least 40 other gastropods.

Literature cited:

Boswell, H. (1964) South Africa's ex-pisce (*sic*) shells. Hawaiian Shell News *12*(5): 1-3, 3 figs.

Matthews, H. R. (1968) Mollusks found in the digestive tract of the fish *Amphichthys cryptocentrus* (Valenciennes, 1837). Proc. Malac. Soc. London *38*: 247-250.

Excerpt from the article by Dr. Lee in SHELL-O-GRAM *21*(1): 2-4, January 1980

FOR A NEW BOOK ON THE OLIVIDAE

Dr. Rowland F. Ziegler, senior author of OLIVE SHELLS OF THE WORLD, by Ziegler and Porreca, 1969 is, with A. J. da Motta, preparing a new book on the complete family Olividae -- including the genera *Agaronia*, *Ancilla*, *Oliva*, *Olivancillaria*, *Olivella*, and *Pseudolivinae*. They would be most grateful for the loan of rare species or their color photographs or correspondence to help them complete their work. Address: Dr. Rowland F. Ziegler, P.O. Box 911, Murrells Inlet, South Carolina 29576.

RHJ

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NEXT MEETING: SUNDAY, FEBRUARY 8, 1981, at 2:00 pm

PROGRAM: Dr. Edward J. Petuch Title to be announced

Don't miss this fascinating speaker!

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HIGHLIGHTS OF THE DECEMBER MEETING

President Fred Cannon noted that a Christmas tree set up in the main lobby of the Museum was decorated with ornaments made by oragami - the Japanese art of folding paper. Among the figures were scallops, land snails, starfish, and horseshoe crabs. The exhibit following this one will be of rare cones from the Munyan collection.

The shells in the display case were from the collection of Morris Levine. The selection was worldwide and included growth series of *Nautilus pompilius*, *Voluta musica*, *Lyropecten nodosus* and others. Other eye-catchers were specimens of *Conus gloriamaris* and *Conus bengalensis*. Morris noted that all of the shells had been purchased during a twelve-year period of extensive travel. And all, he said, had been acquired at comparatively low, and even bargain, prices. Among the best sources, he recalled, were small sidewalk stands in Thailand and in York, England.

The first speaker was Frank Nelson, whose topic was "Building a Shell Library." He concentrated on finding and making the fullest use of sources of material. Among thematerials he displayed were a copy of the periodical "Antiquarian Bookman" and the annual "American Book Trade Directory." The first carries ads by dealers who, in turn, offer catalogs. University presses offer research papers. Other locating helps are the "Sunday New York Times Review of Books" and search services. Good sources include annual sales by libraries in towns and smaller cities, and the outlet stores of charitable institutions. Finding sources and being successful in acquiring an item that attracts you is not always easy, he said, but it's fun, and it brings a lot of satisfaction.

The chief speaker was Mathilde Weingartner, who called her presentation "The Clams Clean Themselves," using the title of the article in *Oceans Magazine* on which her talk was based. The article, subtitled "The Shellfish Industry Emerges from the Abused Shores of Staten Island," traces the cycles of water pollution-closedown-reopening that have plagued the segment of the shellfishing industry dependent on the waters off New York City's largest island. (See Miss Weingartner's report beginning on page 6 of this issue.)

Milton Werner, Recording Sec'y

TREE SNAILS CAN MAKE A DIFFERENCE

Harry G. Lee

One does not normally associate arboreal snails with northeastern Florida, but there are no less than seven species of land snails which have an interesting predilection for life in trees. In the case of Drymaeus dormani (Binney, 1852), this habit has been the source of great interest.

Like its cousins, the Liguus species, D. dormani is found in association with the saprophytic sooty mold which thrives best on smooth-barked trees. Throughout much of its range (basically central Florida) D. dormani is associated with citrus trees. It was noted long ago that "sooty mold" kept company with the citrus growers bane - the white fly. The larvae of these pests excrete honey dew which encourages growth of the sooty mold of orange (Meliola). The association between mold and fly larvae is so constant that badly infested groves may be recognized at a distance by the heavily coated dark foliage.

Sooty mold, although not a parasite on the orange tree, produces discoloration of fruits and probably impairs proper nutrition of heavily affected plants by smothering the leaf surfaces. There is a measurable economic impact on orange growers, who must wash the fruit before shipping to minimize decay and maximize consumer appeal.

Enter Dorman's tree snail. Years ago naturalists observed that citrus groves "infested" with this lovely snail were "protected" from sooty mold on leaves, bark, and fruit without harming these parts of the trees. According to one source, "the trees that are cleaned stand out conspicuously from the surrounding trees by their bright foliage and clean trunks, (and) the fruit thus cleaned has a better color and probably ripens earlier."

While some groves probably were naturally "attacked" by Drymaeus dormani, for many years these snails were purposely introduced into groves to the benefit of the oranges and growers. The more recent reliance on pesticides has overshadowed the use of tree snails (while probably killing these beneficial creatures indiscriminately).

The future of the snail in orange groves is uncertain, but it may someday have a resurgence as man becomes increasingly aware of the environmental hazards, increasing costs, and only temporary effectiveness of chemical pesticides. What we will need is a biological control for the insect parasites of the orange which is as effective as the work done on sooty mold by our molluscan friend Drymaeus dormani.

Reprinted from HAWAIIAN SHELL NEWS, N.S. 243: 7, March 1980, in LEVANTINA No. 26: 303-304 where it appeared under the title "Tree Snails Cleaning Citrus Trees."

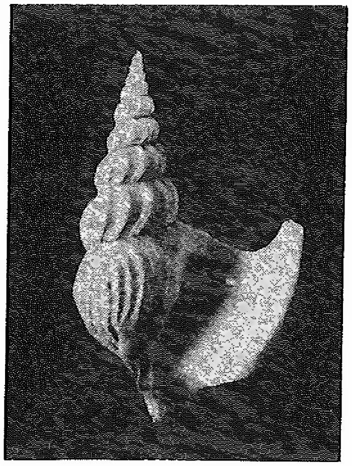
APORRHAIDAE

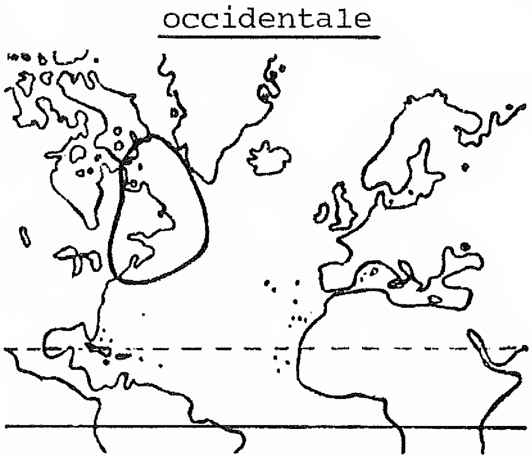
H. P. Wagner
Maystraat 107, 2593 VT Den Haag
Nederland

(Conclusion: See NOTES No. 268.3-6 for Part I of this article.)

The following descriptions of the five still-living species of the family Aporrhaidae (popularly known as "Pelicanfeet") omits discussion of subspecies on the assumption that they are merely regional variations, reflecting environmental differences. Some may be frequently found freaks.

Genus: Drepanocheilus Meek, 1864
Subgenus: Arrhoges Gabb, 1868
Species: Drepanocheilus (Arrhoges) occidentale (Beck, 1836)
(See: Abbott, AMERICAN SEASHELLS 1974, p. 143, No. 1576, Aporrhais occidentalis Beck, 1836. -Ed.)





Description:

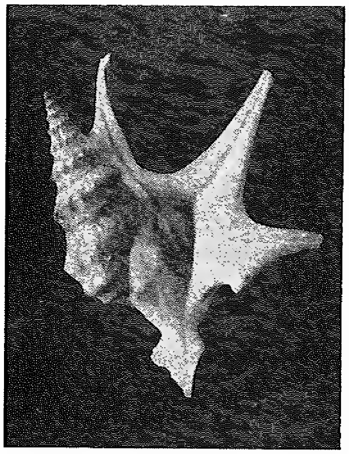
A tapering shell of about 50 mm with 11 whorls, each with 13 axial ribs. The thick, extended outer lip has no fingers.

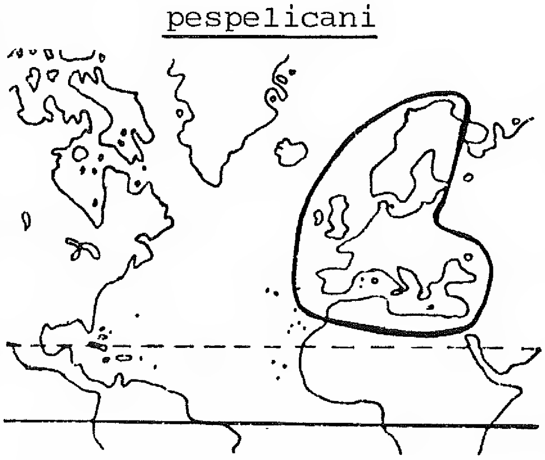
Distribution:

Along the North Atlantic coast of North America.

* * * * *

Genus: Aporrhais Da Costa, 1778
Species: pespelicani (Linné, 1758)





Description:

A tapering shell of 40 to 50 mm having 10 to 12 whorls, each with strong bumps. The color is cream to dirty-white. The outer lip is extended into three long broad fingers. A widened, long siphonal canal looks like a fourth finger. The body is yellowish white with red dots that are most conspicuous on the head. The tentacles are yellow with red. The animal lives at depths of 9 to 133 meters. Some subspecies are:

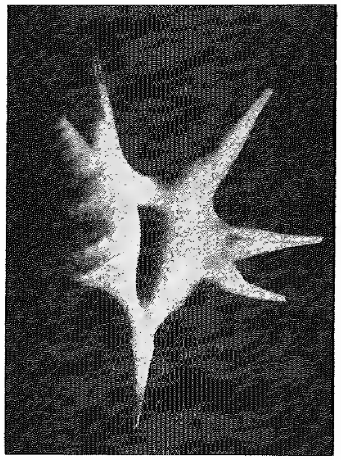
A. p. michaudi Locard, 1886 (Five fingers, of which the second and third turn away from each other.

A. p. sarsi Kobelt (Also five fingers)
A. p. bilobatus Clement (Short fingers)
A. p. conemenosi Monterosato, 1884 (Dwarf form of about 17 mm
A. p. quadrificus Da Costa, 1778 (Thick form)

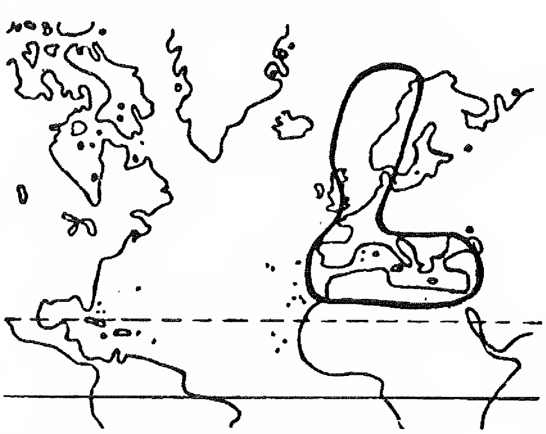
Distribution: From the coast of Norway into the Mediterranean.

* * * * *

Genus: Aporrhais
Species: serreseanus Michaud, 1828



serreseanus



Description:

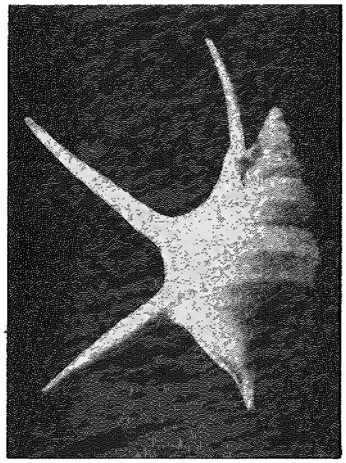
A tapering shell of 40 to 48 mm having about 10 whorls. The sculpture is finer than that of A. pespelicani, and the outer lip, or flag, is not as thick. The flag splits into four slender fingers and a long, slender siphonal canal that looks like a fifth finger. The animal is red with white dots and lines, and lives at depths of 75 to 2300 meters. Some subspecies are:

A. s. macandreae Jeffreys, 1865 (The first and second fingers are joined together)
A. s. hexapoda Nordsieck, 1967 (A form with six fingers)

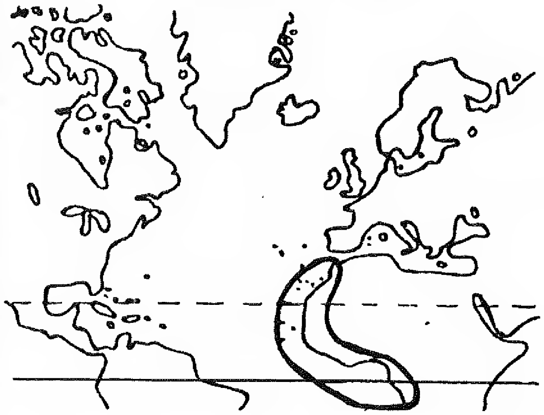
Distribution: From the coast of Norway into the Mediterranean. (NOTE: As far as I know, the species does not live in a big part of the North Sea. --H.P.W.)

* * * * *

Genus: Aporrhais
Species: pesgallinae Barnard



pesgallinae



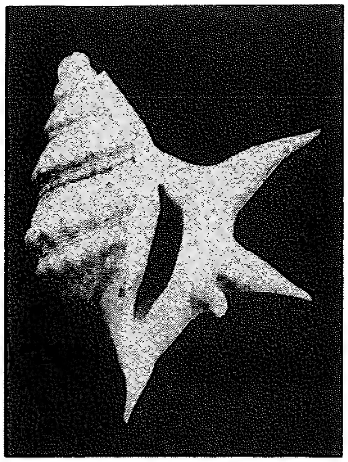
Description:

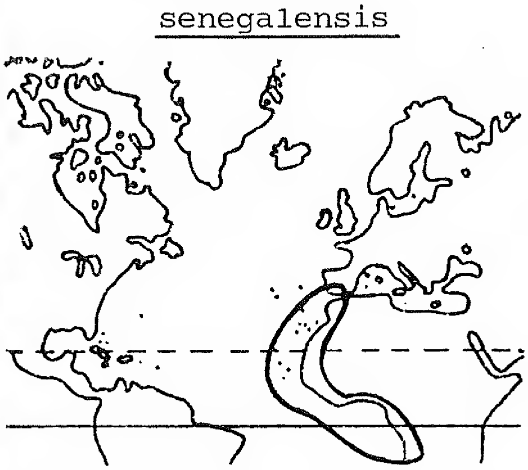
A tapering shell having about seven whorls, each with two or three revolving ridges. The shell is very thin and sometimes almost transparent. The shell has hardly any outer lip as it almost directly splits into three very long, slim fingers. A siphonal canal tapers sharply to form a fourth, much shorter finger. I cannot give exact data on the normal size of the shell or the depth at which the species lives, but the specimen in my own collection is 46 mm and was taken alive from a depth of 50 meters.

Distribution: Along the West African coast and between the Mediterranean and the Atlantic Ocean near Portugal and Spain.

* * * * *

Genus: Aporrhais
Species: senegalensis Gray, 1838





Description:

A tapering shell of about 18 to 25 mm having seven whorls, each with a knobbed, revolving ridge. The outer lip extends into three - sometimes more - tapering fingers, of which the first lies along the spire. The siphonal canal looks like an additional finger. The color of the shell is brown. As for the depth at which it lives, I can refer only to the specimen in my collection, which was taken from a depth of between 55 and 92 meters.

Distribution: Along the West African coast and between the Mediterranean and the Atlantic Ocean near Portugal and Spain.

* * * * *

I wish to express my thanks to Mr. M. de Smit, who helped me in researching the literature, and to Mr. R. Walburg, who made the photographs for this article.

DATES TO REMEMBER

JULY 19-25, 1981: The 50th Anniversary meeting of the American Malacological Union will be held at Fort Lauderdale, Florida, in the Galt Ocean Mile Hotel, located on the ocean. The area should offer everyone opportunities for swimming, collecting, sightseeing -- and nightlife. The host club will be the Broward County Shell Club and the co-hosts the Greater Miami Shell Club and the Palm Beach County Shell Club.

The planned schedule includes contributed papers plus two symposia, a refresher course on some of the fossil mollusks, auctions of shells, books and reprints; workshops, and field trips to marine, freshwater, terrestrial and fossil collecting sites. Plan to attend!

JULY 31 - AUGUST 2, 1981: The Jacksonville Shell Club will try to top their superb show of last year. Try to attend this event also.

THE CLAMS CLEAN THEMSELVES

A Shellfish Industry Emerges from the Abused Shores of Great Kills

Francis James Duffy

Following is a synopsis of the above article by Mr. Duffy which appeared in the Magazine OCEANS, Vol. 13, No. 3, May-June 1980:

Staten Island once had a thriving shellfish industry that dated from the time of the Indians and the early colonists. However, with increased population came increased pollution to such an extent that in 1916 a well-based fear of typhoid prompted the New York City Department of Health to close the shell beds to oystering. The clam beds were closed four years later, in 1920.

The clam beds were reopened in 1940, and the industry employed three hundred full-time and many more part-time employees to supply its principle markets -- the Fulton Fish Market and the Campbell's Soup Company. This continued until 1961 when the clam beds were closed again, this time by the United States Public Health Service, for fear of an outbreak of hepatitis.

Now clam diggers are busy again with their rakes in Raritan Bay waters along the southeastern shore of Staten Island. The waters are still polluted and officially closed. So why is clam digging permitted?

The Great Kills Shellfish Corporation is a new depuration plant which puts the clams through a microbiological cleaning operation. William Ryan, president of the corporation, says, "Actually the clams clean themselves, we just provide the proper environment." The cleaning process has been used for years in France and England, but this is the first such establishment in the United States. A like process was used in Hempstead, Long Island, for a brief sixteen months, but there the clammers had clean beds to work (in Long Island Sound and in Great South Bay -Ed.) and moved to eliminate the processing which only made the clams more expensive.

The process is similar to the filtration system used for swimming pools: Salt water is pumped from deep wells at the rate of twenty gallons per minute. It is run through sand and charcoal filters, and exposed to ultraviolet light to kill bacteria, then put into polyester-lined holding tanks with a capacity of eight to twelve bushels of clams. The water is maintained at 40° to 60°F by either electric immersion heaters or refrigeration units, depending on season and weather. The salinity is checked at 25 p.p.m.

At the end of their day, usually around 3:00 p.m., the clamdiggers deliver their take directly to the depuration plant. The clams are sorted for kind and size (littlenecks and cherrystones are the most valuable), a record is made of time and date, and twenty-four samples are tested for pollution (mostly coliforms). The clams are placed in the tanks and for forty-eight hours water is circulated under controlled conditions. After each forty-eight-hour cycle the tanks are emptied and washed out with a weak Chlorox solution in fresh water before refilling with clean sea water. If, after forty-eight hours of flushing, samples still test for positive bacterial content, the lot is given another twenty-four hours of flushing. If after a total of seventy-two hours of flushing the test is still positive, those shellfish are rejected. Most of the clams test clean after the initial forty-eight hours of flushing; they are bagged and sold to local restaurants and to the Fulton Fish Market with the identifying label on each bag: THIS PACKAGE CONSISTS OF MICROBIOLOGICALLY CLEANED CLAMS, TESTED AFTER TREATMENT AND VERIFIED SAFE. Included on the label is the name and address of the firm, the date, and note of the clam bed from which they were taken.

The plant operates its own laboratory, employs its own microbiologist, and is certified by the Food and Drug Administration. And, besides that, the City, State, and Federal Governments inspect the plant at random and take samples. In addition, the clams sold at the Fulton Fish Market are always available for inspection by the New York City Department of Health.

The baymen who supply the plant are all independent contractors to the Great Kills Shellfish Corporation and receive special permits from the New York State Department of Environmental Conservation. While working the beds they are required to fly a large orange flag and to display a sign saying that the clams are for the microbiological plant only. Conservation officers are alert to illegal clamming, for which the fine is $1,000. Forty special permits have been granted; they restrict the harvesting of clams to a special area of Raritan Bay -- from Great Kills to Seguines Point. Most of the boats work within a three-mile radius of the plant.

William Ryan has done the missionary work of setting up the plant and the laboratory. He obtained all the permits etc. and ran the plant for a full year before selling commercially. He is planning to expand and set up plants in other areas. He may have the answer for saving other shellfish areas at present lost to pollution.

Economically, the clammers are doing well, but for the plant to be profitable it must operate twelve months of the year -- which is sometimes difficult to accomplish in inclement weather.

A presentation by Mathilde Weingartner
at the NYSC meeting of December 1980.
Above synopsis by Mathilde Weingartner.

AFRICAN SUPERSNAILS BASQUE IN SPANISH LETTUCE

Baracaldo, Spain (UPI) - A new problem for the northern Basque country: fist-sized, lettuce-devouring snails that rampage through plants and garbage by night and should be in the Indian Ocean (sic) or West Africa - not Spain.

The two supersnails, each weighing a quarter kilo, were discovered in a field by two youths last weekend and constitute, experts say, a "real scourge."

The snails, the first to be found in Spain and natural only to West Africa and the island of Mauritius in the Indian Ocean, are approximately three years old, the experts say, and "very active by night, attacking live plants and even eating garbage as a diet supplement."

From: The Jerusalem Post, April 25, 1980
in LEVANTINA No. 27: 312, May-July 1980

(The "supersnail" could only be Achatina, which establishes quickly, ravages wherever it goes, and is extremely hard to control. -Ed.)

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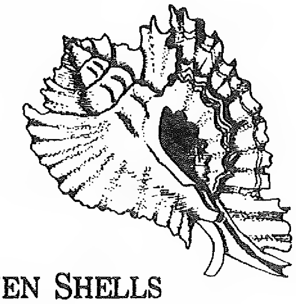

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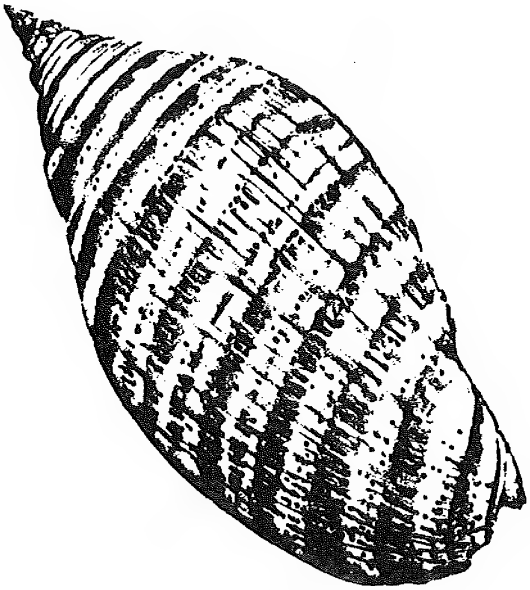

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The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 426, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, MARCH 8, 1981, at 2:00 pm

PROGRAM: COLLECTING IN THE PHILIPPINES
by Sol Weiss

ANNUAL SOCIAL will be held on April 12 at the Broadway Dance Studio. Further details will be in the April Notes.

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HIGHLIGHTS OF THE JANUARY MEETING

Mathilde Weingartner drew attention to a newspaper clipping bearing on her talk at the December meeting -- "The Clams Clean Themselves" (See NYSC NOTES No. 269.6 -Ed.). The article notes that New York City is taking bids for a lease on the Staten Island property now used by the Great Kills Shellfish Corporation for its clam-purification operations. The property will be used for this purpose only, indicating that the experiment is considered successful. It is expected that the incumbent will be the successful bidder.

The first speaker was Fred Cannon, who continued the series on how to handle a shell collection. Fred's slide talk on displaying and storing shells covered the use of small and large plastic boxes, glass-fronted bookcases, shelves with mirror backing, and stands made of Lucite and of Lucite and wire for individual shells. He displayed samples of the stands, many made by himself. His remarks on storing shells were accompanied by photos of cabinets, converted from other uses, in the Janowsky's shell room.

Fred displayed a copy of "Ranger Rick," a natural history magazine published by Eastern Airlines for youthful passengers. It carried an article on fossils to be seen in architectural stone in a number of places -- including Macy's -- in New York City. The authors were Merril and Jennifer Horenstein, the daughters of Sidney Horenstein of the Museum's Paleontology Department.

The main speaker was member Richard Goldberg, who described recent trips to the Turks and Caicos Islands in the British West Indies, and to Puerto Rico, and his terrestrial and marine collecting in these places. His major stops in the Turks and Caicos were at Blue Hills, Long Bay, and Water and Pine Keys. In Puerto Rico he did land shelling in the Luquillo Rain Forest and in the low-lying area along the northern segment of the island, among others. His marine collecting included a number of widely separated areas, some along the southern shore. His slide photos included scenery, shelling localities, shells, and live terrestrials in situ. Many of the marine specimens were from deepwater traps set by fishermen. Most of these shells housed hermit crabs, but were in very good condition.

Milton Werner, Recording Secretary

COLLECTION OF RARE SHELLS EXHIBITED

A collection of rare and scientifically valuable cone shells, that were donated to the American Museum of Natural History, went on display Monday, January 12 in the Museum's Roosevelt Rotunda.

The exhibit, entitled "Glories of the Sea: The Munyan Collection of Cone Shells," is part of the collection given to the Museum by retired businessman and lawyer, Thomas Munyan, and his wife Virginia, of Margate, New Jersey. The exhibition is an Arthur Ross Exhibit of the Month. It will remain on display until another current exhibit is prepared.

"Glories of the Sea" will showcase many of the finer and rarer examples of the collection's cone shells. The exhibition focuses on one-tenth of the 2,200 specimens contained in the Munyan collection.

Highlighted in the exhibition is the "Collectors' Items" section. The "Collectors' Items"shells are the rarest specimens in the collection.

Also of special note are examples of the highly acclaimed Glory-of-the-Sea cone shell, for which the exhibit is named. These beautiful cone shells were first brought to Europe from the South Seas in the 16th Century and for nearly 200 years remained the most sought after collectible specimens in Europe.

Several items in the Munyan collection are new to the Museum. One such example is the Gauguin's Cone, which was named after the famous French artist Paul Gauguin. An example of this colorful species is on display.

AMNH Public Affairs Release

WE WELCOME TWO NEW SHELL CLUBS

The NORTHWEST FLORIDA SHELL CLUB was formed in July, 1980, in Fort Walton Beach, and have as their emblem the True Tulip, Fasciolaria tulipa. Most of the local collectors are divers, as intertidal species are few. Those visiting the area may call Ed Schelling, Publicity Chairman, (904) 242-7844, for collecting, diving, and trading information.

The GULF COAST SHELL CLUB of Panama City was formed in September, 1980, the 15th shell club in Florida. Their emblem: the Bay Scallop, Aequipecten irradians concentricus. The club meets on the 2nd Tuesday of each month, 7:00 pm at the Frank Nelson Jr. Clubhouse. Correspondence may be addressed to the club at 925 Rosemont Drive, Panama City, Florida 32405.

OF SEA AND SHORE, Fall 1980

THE PRECIOUS WENTLETRAP, EPITONIUM SCALARE, IN THE RED SEA

Henk K. Mienis
Zoological Museum, Mollusc Collection,
Hebrew University of Jerusalem, Israel

The precious wentletrap, Epitonium scalare (Linnaeus, 1758), is one of the molluscan species which has attracted attention since people started to collect shells. Without doubt its exclusive form plays an important role in being a favourite in the shell collector's eye. During the seventeenth and eighteenth centuries it was a much sought after collector's item, fetching high prices at auctions. It was even so rarely offered that faked specimens made of rice paste appeared on the market. Today it is still very much in demand, but prices have dropped considerably because of a much larger supply of available specimens.

Most specimens offered in the past originated from the Far East, mainly Japan and China, although the former Dutch East Indies, now Indonesia, provided most probably the first specimens which were shipped to Europe. However, more recently large numbers have been found in the Philippines, New Guinea, Australia, etc.

Less known is the occurrence of Epitonium scalare in the Indian Ocean. It has been reported in the past from the Persian Gulf, Gulf of Oman and Arabian Sea (Melvill & Standen, 1903) and from the Gulf of Aden (Jousseaume, 1912). Still largely unknown is its occurrence in the Red Sea. In a previous note (Mienis, 1974) I could report a specimen from Massawa, Ethiopia, and another from Elat, Israel. In the meanwhile Mastaller (1979) reported a third specimen from the beach of Aqaba, Jordan. This means that the precious wentletrap has most probably to be considered a native of the Red Sea. More records may be expected in the future.

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Melvill, J. C., & R. Standen, 1903. The genus Scala (Klein) Humphrey, as represented in the Persian Gulf, Gulf of Oman, and North Arabian Sea, with descriptions of new species. Jour. Conch., 10: 340-351.

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from LEVANTINA No. 27: 309, July 1980

MARCH SHELL SHOWS

March 6, 7, 8, 1981: Central Florida Shell Club's Show, Fellowship Hall of the First United Methodist Church, 142 East Jackson Street, Orlando, Florida.

March 13, 14, 15, 1981: The Georgia Shell Club's Show, Perimeter Mall Shopping Center, 4400 Ashford Dunwoody Road, Atlanta. Co-chairman Mrs. Louise Compton, 4236 Lower Roswell Road, Marietta, Georgia 30067.

O.S.S.

RESULTS AND CONSEQUENCES

Donald F. Squires,
Sea Grant Director in Albany

An anthropologist friend of ours, Estellie Smith, from State University College at Oswego has observed, "What you wants is results -- what you gits is consequences." This pithy statement, as so many others like it, sums up a lot of life. And, when it comes to science and technology, results and consequences are a lot of the game.

Scientists and technologists are taught to be "results" oriented. Their concerns are for the end product of the experiment. They don't know what that will be, but where they go from there will depend a lot on what kind of answer comes out. Consequences, they often think, are something for the social scientists and humanists to worry about. That kind of thinking was once much more prevalent, particularly in the period after the second world war when, being a pretty dedicated lot, scientists weren't very much concerned with the world outside their laboratory. The environmental movement and other social causes since then have changed a lot of that.

In our everyday lives we have some troubles with results and consequences. For the last 20 years all over the country, there has been a movement to clean up the waters, to reduce the impact of pollution. One such activity has been the construction of large sewage treatment plants. The result of these plants has been the reduction of one kind of pollution and an increase in the oxygen levels in the water. The consequence of our pollution reduction program has been the reinvasion in New York Harbor of "gribbles," shipworms and other boring organisms.

Now, for our "freshwater" readers, "gribbles" are crustaceans which, with Teredo and other boring molluscs, can reduce a wood piling or a bulkhead plank to a sponge-like unsound entity in no time at all. These creatures are the scourge of the marine construction engineer. Boring organisms had not been in New York Harbor for a very long time. Why? Because the load of sewage dumped into the Hudson, Harlem, and East rivers and the Arthur Kill and other stretches was such that its oxidation pulled out all available oxygen in the water. With the oxygen gone, the little "gribble" and shipworm critters couldn't live. Now they are back.

Once the borers were as much a problem in New York Harbor as anywhere else. The Board of Aldermen in the City complained in 1833:

> And whereas it is a fact of great notoriety, that the piers and wharves, as now constructed of timber, are temporary and generally endure only from fourteen to seventeen years before they are destroyed by worms.

But, in 1953, engineers of the Port Authority were noting that many pilings have been in service for 50-75 years.

The harbor is slowly being reinvaded by boring organisms and many of the pilings and wharves that had been constructed in those wonderful, gribble-free days are now being subject to attack. In the recent past, since everyone knew how polluted the harbors waters were, and knew no borers could survive, money was saved and the pilings went untreated; that kind of protection wasn't needed. Until now, that is. As we clean up the harbor, we may very well see the under-pinnings of its magnificent docks and structures slowly crumble.

To the Port of New York this is not very funny. All along the port people haven't been so keen on water quality improvement in the harbor because they were concerned with the consequences, not the results. And the consequences to them are the over two million pilings in the harbor that may have to be replaced -- at long last.

From: COASTLINES 12(1):3, Jan.-Feb. 1981
Pub. NYS Sea Grant Institute

A NOTE ON NUCELLA LAPILLUS (Linné, 1758)

The Atlantic Dogwinkle, Nucella (=Thais) lapillus, lives on the shores of northern Europe and the British Isles, and on our coast from Labrador to the eastern end of Long Island, New York. The most westerly record on Long Island is Hither Hills State Park, which is far out on our southeastern shore.

In March 1976 our member Cherita Stark found one live specimen on sand in the intertidal zone in the area of Shinnecock Inlet, 25 miles or more west of Hither Hills. Question: Is this a single occurrence, the specimen having been carried westward by the coastal current, or has a colony of these rock-dwellers become established in the Shinnecock area to extend the range of the species? We think it's worth exploring.

dr

CYPRAEA MIDWAYENSIS Azuma & Kurohara,1967

Robert H. Janowsky

It is an embarrassing thing to have to admit one's ignorance in print but prior to seeing the specimen of Cypraea midwayensis whose photograph accompanies this article that is what I'd have to do in regard to this very rare and very seldom seen species. Before examining this specimen, my sole basis for any remarks about Cypraea midwayensis would have been based on two dead-collected specimens (one of them in such poor condition that I would not take an oath that it was this species), and some indistinct photographs of what, supposedly, are Cypraea midwayensis from various sources. I think that you can imagine my excitement, then, on receiving this magnificent live-collected specimen to study. One can find a color photograph of Cypraea midwayensis in Jerry Walls' "Cowries" second edition, TFH Publications, 1979, and also on page 215 of the earlier edition by Taylor and Walls, but I am bothered by these photographs for several reasons. First, there seems to be an exaggeration in the color and the specimen appears to be far too orange. Second, the dorsal blotch that is amply evident in the holotype and in the specimen whose photograph is reproduced here is not in evidence in the specimen in Walls. Third, the spotting at the margins is very evident in the Walls specimen, less evident in the holotype, and almost absent in this specimen. Fourth and last, this specimen and the holotype have labial dentition that is far finer and more numerous than in the Walls specimen. In spite of these differences it is very clear that the three specimens all represent the same species. The possibility exists that the three specimens represent different degrees of maturity.

Azuma and Kurohara report in their description of the species in "Venus" vol. 26, no. 1, 1967, pp. 1-4 that two specimens, one of which was alive, were collected by a coral fishing boat, the "Sakae-Maru," at a depth of approximately 460 meters off Midway Island. The radula was obtained from the live-taken specimen and proved to be so distinct that the authors created a new genus, Nesiocypraea, based on its characteristics. The only other recent species to be placed in this genus is Cypraea lisetae Kilburn, 1975. Kilburn in fact in his original description of C. lisetae feels that the two species are similar enough to possibly reduce with further study C. lisetae to subspecific status. It is, of course, too early to reach any significant conclusion about this, since so few specimens of either species have been available for study. From my observations, though, I at this point favor their specific separation. (For additional discussion see NYSC NOTES 261.6,7 "Cypraea lisetae Kilburn, 1975" by Robert H. Janowsky. -Ed.)

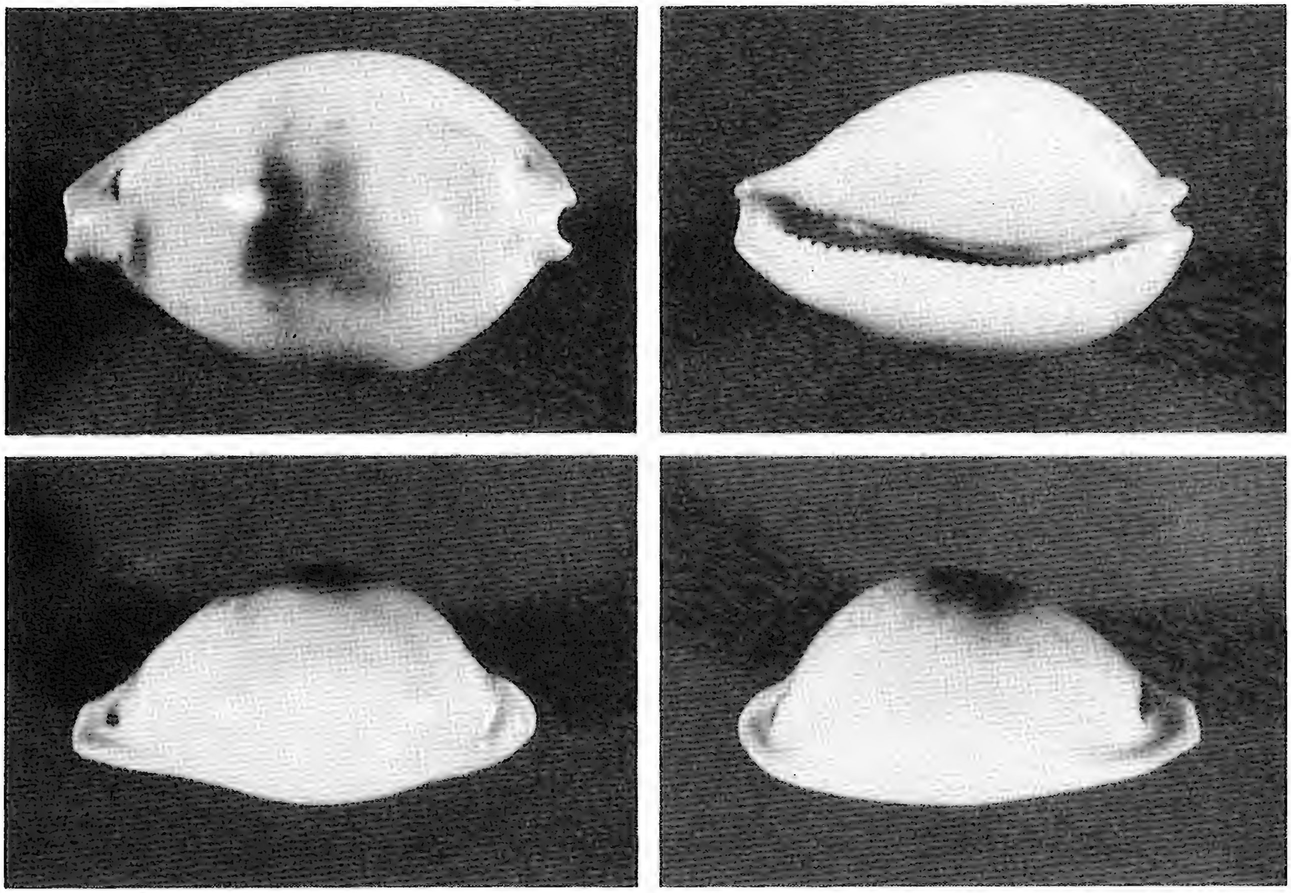
The specimen of Cypraea midwayensis studied here is, like every other known specimen of the species, a topotype (i.e. found in the same locality as the type specimen). It was trawled off Midway Island in 1980 at a depth of 400-450 meters by a coral-fishing boat originating in Taiwan. It is considerably larger than any previously reported specimen, measuring 25.9mm in length, 16.5mm in width, and 13.4mm in height. Maximum heights are not recorded by Azuma and Kurohara but their holotype measures 21.5mm in length and 13.5mm in width. Corresponding figures for their paratype are 18mm and 12mm.

The single most striking feature of this shell is one that I find difficult to put into words, since I have found this sort of thing in no other species of Cypraea. At the risk of vastly simplifying the matter, let me simply say that the shell looks as if it is illuminated from within -- rather like an opalescent piece of glass viewed with a light behind it. The glaze is so thick and so lustrous that one feels one is looking into the shell rather than at it. The comparison to a nice piece of lacquer also comes to mind. The overall color is light tan/cream. There is an irregularly shaped but distinct light red/brown blotch in almost the center of the dorsum. A second, smaller blotch of the same color is found just above the anterior canal; a very faint, almost indistinct blotch, far lighter in color, is just above the posterior canal. Two dark anterior terminal spots are found, and one posterior terminal spot is found on the labial side. The callus extends high onto the dorsum and sharply defines the dorsum from the base. The labial callus is thickly formed and angles toward the base sharply, giving this shell a most singular appearance. The callus and the base are lighter in color than the dorsum, being off-white/cream in color. Two distinct patches of the same color can be found just above the margins on either side of the specimen. Small, irregular and indistinct spots are found in the margins.

The teeth and the canals are colored brown/orange. The columella and interior are cream/white. A moderately deep, somewhat triangularly shaped fossula is present on the columella, and a few inner denticles are found above the fossula which is strongly separated from the anterior canal by a strong terminal ridge. Both columellar and labial teeth are numerous and finely developed. Development of the teeth on both sides of the aperture is stronger nearer the canals than it is in the center of the shell. The labial teeth are produced more strongly and more distinctly than those on the columella. I counted 26 denticles on the columella and 28 on the labial side of this specimen. The canals are thick, and they are moderate in length. The columellar side of the posterior canal is sharply produced when viewed from the base, adding to the singular appearance of this species.

A final note on this rare species is that Azuma and Kurohara in describing the holotype report only 10 or 11 columellar teeth and find the center of the columella to be nearly smooth. I have found that teeth are present in this central area; they are minute and difficult to see but are there, nonetheless. Again, this may be a function of the relative maturity of the specimens observed.

The specimen here studied is in the collection of NYSC member Mrs. Constance Duprey of Nashville, Tennessee. It is a specimen that she should be proud of owning, and one that I am delighted to have had the opportunity to observe and to share my observations with you.



Cypraea midwayensis Azuma & Kurohara, 1967

Length 25.9mm, Width 16.5mm, Height 13.4mm
Trawled 400-450 m. off Midway Island, 1980

Collection of Constance Duprey

Photograph by Robert Janowsky

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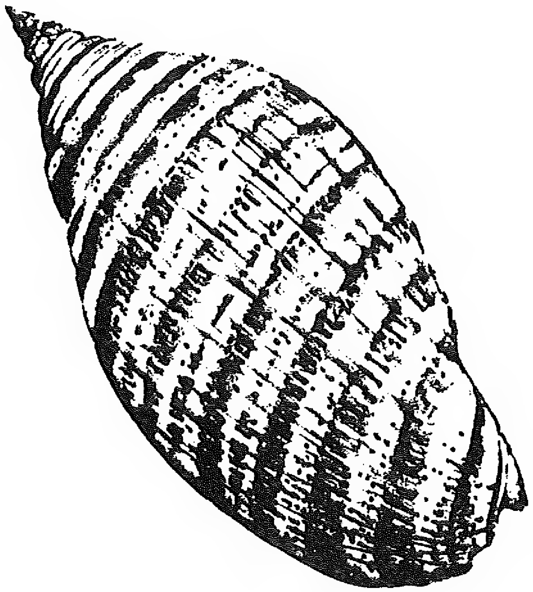

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NEW YORK
SHELL CLUB
INC.

FOUNDED JAN. 1949

March 5, 1981

Dear Friends and Members,

IT'S THAT TIME OF YEAR AGAIN!
TIME for "Spring House Cleaning"!
TIME to overhaul your shell collection!
TIME to dig into the dark corners of your cabinets, boxes, and drawers and find all those wonderful shells to donate to our annual auction.

On April 12 the New York Shell Club will again hold its Social and Auction at the Broadway Dance Studio. As every year, we need all your generous donations of shells and shell related materials, ie: books, papers, crafts, et al., to make our day a huge success. Last year was a great success and a lot of fun thanks to the help and support of our club members and friends, and to our friends at the Long Island Shell Club. Please, please try to support our social this year as much as and perhaps even more than last year.

We use the profits from this day to help defray the costs of obtaining new and interesting guest speakers. We really want to make our meetings as enjoyable and as much fun as possible for all of you.

The doors will open at 2 P.M. for everyone to enjoy a glass of wine and to inspect the items up for auction and make purchases from our bargain table. At 3 P.M. promptly the auction will begin with our wonderfully gifted and exuberant auctioneer, Bill Old. The cocktail hour will begin at around 5 P.M. and will be followed by a hot buffet similar to last year's. To end our day there will be plates full of delicious homemade cakes and desserts.

To whet your appetite a little more, here are some of the wonderful items already received for the auction: Voluta lutosa, Voluta jamrachi, Voluta arabica jaculoides, Conus nobilis, Conus coelinae, Conus ammiralis, Cypraea saulae, Murex maurus, and a giant Syrinx aruanus. We will also have a great door prize and a raffle of Jerome Eisenberg's fabulous new book "A Collector's Guide to Seashells of the World" and a 15 inch beautifully colored Charonia tritonis.

Our club now has a non profit status with the federal government. Anyone making a substantial contribution to the auction will receive a letter of thanks that may be used for a tax deduction by the donor. If such a letter is desired, please see that I receive a note with your contribution including the value of the gift and your name and address.

The cost of this wonderful day is only $7.50 per person, which includes the auction and dinner. HOWEVER, we must have advance reservations by no later than April 8. You may contact any of the following people to make your reservations:

Dottie & Bob Janowsky	485-3550
Veronica Johns	532-8690
Fred Cannon	852-1765

The officers and Board of Directors all look forward to a terrific turnout. If you haven't been to a meeting lately or to a recent social - we missed you! Why not come out on April 12 and renew many old friendships and make lots of new ones too!

It's only $7.50 for a fun filled day.

I look forward to seeing all of you on April 12 at 2 P.M.

Sincerely,

Fred

Fred Cannon

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in THE AMERICAN MUSEUM OF NATURAL HISTORY, Room 426, with the following exception:

NEXT MEETING: SUNDAY, APRIL 12, 1981, at 1:00 pm*

THE PLACE: BROADWAY DANCE STUDIO (Phone: AS.4-1503)
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DIRECTIONS: Dorothy Jensen's BROADWAY DANCE STUDIO is on the second floor of the building, corner of 31st Street and Broadway. From Manhattan, take the B.M.T. subway, ASTORIA line to the BROADWAY stop and there you are. If you are using the I.R.T., take the FLUSHING line to Queensboro Plaza and transfer (free) to the B.M.T. ASTORIA line. From Jamaica, IND. subway to Roosevelt Ave., free transfer to I.R.T. FLUSHING line to Queensboro Plaza, transfer again to B.M.T. ASTORIA train. BY CAR: QUEENSBORO BRIDGE to Northern Blvd. to 31st Street, left on 31st Street (under the Elevated) to Broadway. Or: TRIBORO BRIDGE to the first exit in Queens, turn right under the Elevated along 31st Street to Broadway. The building is on the southwest corner. From Long Island: GRAND CENTRAL PARKWAY to the last exit before the Triboro Bridge, go a short distance along Astoria Boulevard to 31st Street, turn left under the "El" to Broadway -- about six blocks.

*Doors will be open at one o'clock for your preview and for receipt of your donations.

PROGRAM: ANNUAL PARTY ! See Fred Cannon's accompanying message for details.

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HIGHLIGHTS OF THE FEBRUARY MEETING

A newspaper clipping, sent along by Dr. Walter Jacobs and read by Mathilde Weingartner, reports on the first drug that has shown effectiveness in treating schistosomiasis. It is a product of Pfizer, Inc., trade-named Vancil.

The speaker was Dr. Edward Petuch. Since addressing the Club a year ago (See HIGHLIGHTS... NOTES No. 260.1) he has shifted his affiliation from the University of Miami to the University of Maryland's Department of Zoology. His subject was "Mollusks of the

Abrolhos Archipelago, Brazil, and Some New Discoveries in the Southern Caribbean." His talk was a follow-up to his earlier presentation on this 1977 expedition, with new photographs and an up-to-date report on the new species he collected and has described. Concerning the new species, he said that he was the first person to collect in the Abrolhos Archipelago since Charles Darwin, and he added his belief that more than half of the world's mollusks have not yet been described, since deep-water dredging and diving are relatively new as collecting methods. One of his new species, however, is a limpet from the rocky shore of the archipelago. Ed also recalled purchasing, in Rio de Janeiro, a number of *Conus* brought in by shrimp trawlers, and finding new species among them. He described again his two-week voyage on a shrimp boat out of Cartagena, Colombia, with its smells and discomforts. After every trawl he had to rescue the shells from the crew, who would have thrown them overboard immediately. His frantic efforts salvaged the material that became the basis of his doctoral dissertation. One of the discoveries of this expedition was that in the waters off Venezuela live hundreds of species previously thought extinct, and that were named from fossil shells collected in the Caribbean. The day's display of shells was provided by Dr. Petuch. Most were *Falsilyria* (Volutidae) from Honduras, some of them new species named by him.

Milton Werner, Recording Secretary

YOUR FUTURE IN THE SEA - 1981

The 11th Annual Symposium by the American Littoral Society will be presented at the American Museum of Natural History on Saturday, March 28th. Afternoon session $4.00, Evening session $5.00, Combination $8.00. Order your tickets from the American Littoral Society, Highlands, New Jersey 07732 by March 23. After that date call (201) 291-0055. Presentations by Jack Casey, Eugenie Clark, David Ehrenfeld, Richard Ellis, Doug Faulkner, Irving Johnson, Robin Lehman, Richard Macomber, and Ruth Turner insure an exceptional symposium and a stimulating day. Attend if you can.

PUBLICATIONS:

GENERA OF THE BIVALVIA:
A Systematic and Bibliographic Catalogue (Revised and Updated)

Harold E. Vokes

Out of print for many years, Harold Vokes' original *Genera of the Bivalvia* (Bull. Am. Paleontol., vol. 51, No. 232, 1967, 292pp) is now available in a revised and updated edition. It includes names and first bibliographic citations for all bivalve genera described between 1758 and mid-1980. A complete generic index is included. To order, send (US) $20.00 + $1.81 for postage and handling to:

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FROM THE MAIL BAG

Two letters have come to our secretary, both from Portugal, from collectors who would like to exchange. They are:

Vitor M. S. Ferreira, Rua das Tílias,66, 4100 Porto, Portugal, who found our address in a shell book. He writes that he collects shells of everywhere, generally, and will send a list of the species he has for exchange and would be pleased to receive a respective list.

José Lemos, Ladeira do Seminário 86 - 1º D$^{\underline{to}}$, 3000 Coimbra, Portugal, writes that he is a beginner in sea-shell collecting and enjoys it very much. He would like to know if there is someone among us who would be interested in exchanging sea-shells with him, as it is very difficult for him to get sea-shells from other countries.

FIRE ISLAND NATIONAL SEASHORE

Fire Island is a barrier beach off the southern shore of Long Island, extending 32 miles from Democrat Point (western end of Robert Moses State Park) eastward to Moriches Inlet. Several years ago the entire island was designated a National Seashore. Now we have this further and most welcome news as reported in NEW YORK STATE ENVIRONMENT, 10(5):10, February 10, 1981:

> "In December, an eight-mile section of Fire Island was declared a National Wilderness Area, the first such federal preserve in New York State. The federal bill, signed into law by former President Jimmy Carter, is designed to protect 1,363 acres of salt marsh, swale (low tracts of marshy ground), uplands, cranberry bogs and pine forest. Also protected are the 40-foot high sand dunes, the highest found on the Atlantic coast.
>
> Initially, the National Forest Service had recommended that President Carter veto the bill, maintaining that the legislation did not provide sufficient protection to the area. After consultations with environmental groups and the Long Island Congressional delegation, the Park Service reversed its decision."

The National Park Service station on Fire Island informs us that the newly declared National Wilderness Area encompasses the entire width of the island for the eight-mile stretch between Watch Hill and Smith Point. It is open to the public and accessible by passenger ferry from Patchogue to Watch Hill, or via the Smith Point bridge (at the southern end of William Floyd Parkway). The shoreline of the north side of the island, facing Great South Bay, is mostly marsh and swale; the southern shoreline has a wide and magnificent ocean beach. By appointment (516: 289-4810) a ranger will lead groups on nature walks.

Another interesting area on the Island is the Sunken Forest, "a primeval woodland region with centuries-old-trees, wild marsh, small ponds and bay areas..." reached by passenger ferry from Sayville to Sailors Haven. Guided walks are available in summer.

REMEMBER THE PARTY !

Your contributions to the auction are not restricted to shells. At times we have had artifacts, plants, pictures, whatnots, and soforths. Remember that one man's "white elephant" may be the next one's treasure. And if you have absolutely NO item on hand, how about baking a cake?

Foreword: It should be of interest to visitors to the ABC islands to know some of the local shell names. Dr. H. E. Coomans of the Zoologisch Museum, Amsterdam, who has done malacological work in the Antilles, kindly sent us his paper, VOLKSNAMEN VOOR WEEKDIEREN OP DE NEDERLANDSE ANTILLEN (Nieuwe West-Indische Gids No. 2, April 1970, 47ste Jaargang). In his paper Dr. Coomans delves into the origin of the vernacular names -- no mean task, as most are corruptions of the Dutch, Portuguese or Spanish. The introductory paragraph of the following article is the English summary that concluded his delightful paper. The abbreviated lists that follow are from pages 182 and 183 of his publication.

VERNACULAR NAMES OF MOLLUSCS IN THE NETHERLANDS ANTILLES

Henry E. Coomans

Many hundreds of species of shells are found on and around the six islands of the Netherlands Antilles. However, only a small number of these have received local names. Three languages are spoken on the islands: Dutch, Papiamento and English. - Papiamento is used in Curacao, Aruba and Bonaire. It is a creole language with Spanish, Portuguese, Dutch, English, Indian and African elements. The molluscan names in Papiamento clearly show their mixed linguistic character. - On the Netherlands Antilles' Windward Islands, St. Martin, Saba and St. Eustatius, the English language is used. However, the local names for shells are different from those used for identical species in the U.S.A. and Puerto Rico.

	Curacao, Aruba, Bonaire	St. Maarten, Saba, St. Eustatius
MOLLUSCA (Weekdieren)	cocolíshi	
Klasse GASTROPODA (Slakken)	cocolíshi	
Fissurellidae and Acmaeidae	tápa cónchi clecónchi (Ar.)	
Trochidae		
Cittarium pica (L.)	kíwa (alikruik) (Cur.) ?(coqueluis) (Cur.)	whelk
Neritidae		
Nerita peloronta L.	djacaráo (Bon.) krékchi, kréwchi, kréuchi (Cur.)	
Strombidae		
Strombus gigas L.	carcó (kincón) (koorkóor)	conch king conch rose conch
Strombus costatus Gmel.	carcó dúru (zilverschelp)	
Cassidae		
Cassis tuberosa (L.)	? carcó indján	helmet conch queen conch
Muricidae		
Purpura patula (L.)		frenchman (Saba)

	Curacao, Aruba, Bonaire	St. Maarten, Saba, St. Eustatius
Melongenidae		
Melongena melongena (L.)	?carcó indján	
Conidae	cocolíshi indján	
LANDSLAKKEN		
Chondropomidae		
Tudora megacheilos (Pot. & Mich.)	cocolíshi di cabritu (Cur.)	
Cerionidae		
Cerion uva (L.)	cocolíshi di kalakóena (Cur.), cocolíshi di carné	
Klasse PELECYPODA (Tweekleppigen)		
Mytilidae		
Brachidontes exustus (L.)	palúli ?(cocqueluis)	
Pinnidae		
Pinna carnea Gmel.	cocolíshi hústu	
Ostreidae		
Crassostrea rhizophorae (Guilding)	oester hústu	mangrove oyster or oyster (St.M.)
Tellinidae		
Tellina radiata L.		chinese (St. M.)
Strigilla carnaria (L.)		rose words
Donacidae		
Donax denticulatus L.		chipi-chipi (St.M.)
Sanguinolariidae		
Asaphis deflorata (L.)	?(palúli di téra)	
Klasse AMPHINEURA (Keverslakken)		
Chitonidae		
Acanthopleura granulata (Gmel.)	tápa cónchi (cacaláca di áwa)	long back
Klasse CEPHALOPODA (Inktvissen)		
OCTOPODA (acht-armigen)		
Octopus vulgaris Lam.	zeekát	
O. hummelincki Adam	zeekát corá	
O. rugosus Bosc	zeekát di piédra	
DECAPODA (tien-armigen)		
Sepioteuthis sepioidea Blainville	zeekát buladó	
Sthenoteuthis pteropus (Steen.)	zeekát pía lárgu	
Lolliguncula brevis (Blainville)	(Spaansche zeekát)	
Loligo vulgaris Lam.	(sepia)	
Spirula spirula (L.) unfamiliar inktvis	zeekát tumadó	

FABULOUS FESTILYRIA

Robert H. Janowsky

One of the most interesting genera of the family Volutidae is the genus Festilyria Pilsbry and Olsson, 1954. This genus is represented in the Recent fauna by only four species, all of which are only seldom seen. Three of the four species are found in deep water off the east African coast and the fourth is found off Oman and Somalia. Illustrated here are two exceptionally fine specimens of two of the most striking of these rare shells.

The specimen of Festilyria festiva (Lamarck, 1811) is the largest and most strikingly colored that I've seen. It measures 220.3mm in height and is 119.4mm wide at its shoulder. The lip is extremely thick, measuring 6.6mm in its thickness. This specimen was collected at Alula, Somalia which is on the Gulf of Aden, directly across the Gulf from Al Masirah Island, Oman which is the only previously known reliable record for this species. Apart from its impressive size, the most striking feature of this specimen is its color. The overall color is soft ivory on which are found large irregular patches of bright orange. The callus, parietal shield and interior of the aperture are of a lighter golden/orange color. The fasciole and the posterior canal are dark brown/black and a dark line separates them from the parietal shield and callus. A well colored specimen is figured in LIVING VOLUTES by Weaver and duPont on plate 22, figure D, but the color of the specimen illustrated here is far better. A specimen is figured in black and white on the dust cover of Maxwell Smith's 1942 work, A REVIEW OF THE VOLUTIDAE. On page 26 of this work Smith remarks that this species is "said to be one of the rarest Volutes" -- a statement that is still true nearly thirty years later. Several specimens have lately become available but this shell is still one that little is known about. The illustrated specimen is in the collection of New York Shell Club member Waverley Harmon of New York City.

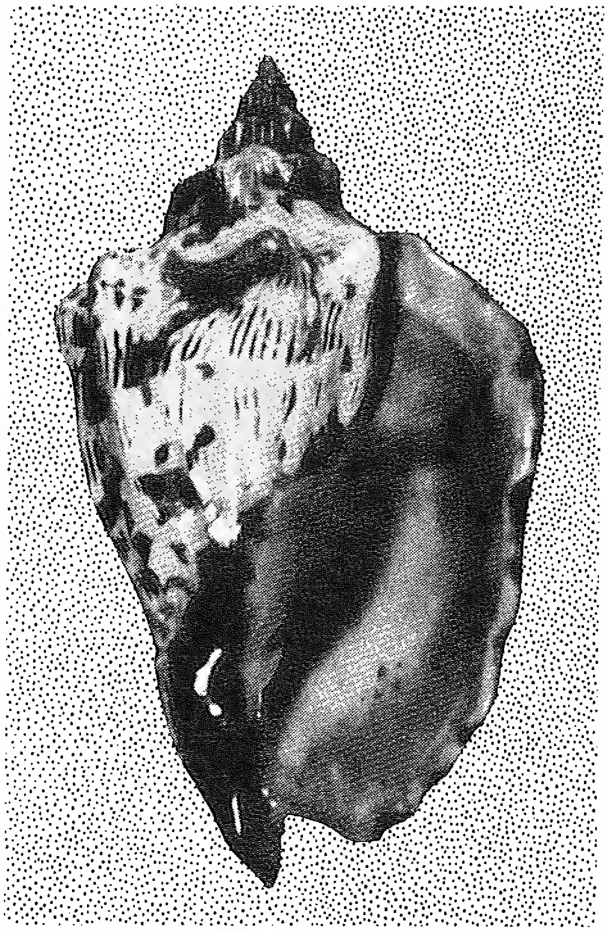
The second specimen here illustrated is a very brightly colored specimen of Festilyria ponsonbyi (E. A. Smith, 1901) which is in the collection of New York Shell Club president Fred Cannon. This specimen measures approximately 65mm in height and shows remarkable color and pattern in spite of the fact that it was collected ex pisce. This species is found in the waters off Durban, South Africa and is most often collected ex pisce although a few living specimens have been dredged at depths between 20 and 50 fathoms. A live specimen complete with operculum is illustrated in Weaver and duPont on plate 21, figures E and F, of LIVING VOLUTES.

The overall color of this Festilyria ponsonbyi is orange and the whorls are girdled by cream bands, singly or in pairs. These bands are broken into a brick-like appearance by fine irregular orange/brown lines. The callus is far less produced than in F. festiva and is cream in color, the interior of the aperture is flesh/pink and the lip is striped cream and orange. The tubercles on the shoulder are sharp and are red/brown at their tips. The fasciole is orange/cream, which is to me the quickest way of separating this species from the closely allied Festilyria duponti Weaver 1968 which has a black fasciole. Several other characteristics separate these species, too, but the above is my guide.

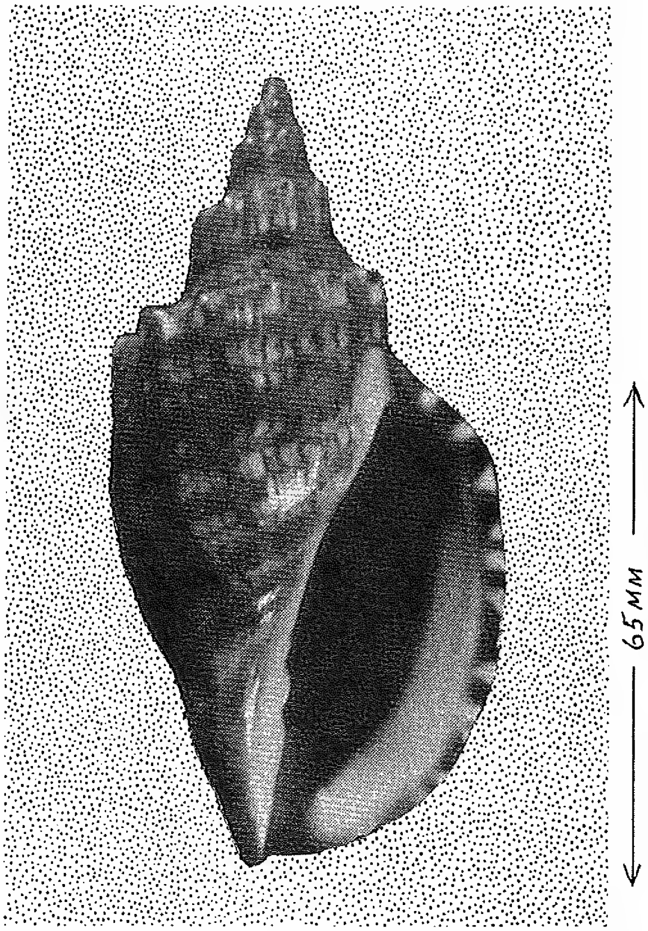
In researching this article I came across an error in Brian Kensley's

SEA-SHELLS OF SOUTHERN AFRICA: Gastropods. On page 183 of this work the numbers of the figures 689 and 690 are unfortunately reversed. Following the text on page 182, the shell illustrated as Lyria (sic) ponsonbyi (Smith) #689 is Lyria queketti (Smith) #690 and vice versa.

Readers desiring information on the two species of Festilyria not discussed here are directed to the excellent treatment of this entire genus in Weaver and duPont's LIVING VOLUTES, 1970 (375 pp, 79 color plates, 43 figures).



Festilyria festiva (Lam.,1811)
Height 220.3mm, Width 119.4mm
Alula, Somalia
Collection of Waverley Harmon



Festilyria ponsonbyi (E. A. Smith, 1901) Height 65mm
ex pisce Durban, So. Africa
Collection of Fred R. Cannon

Photographs by Robert H. Janowsky

GULELLA BICOLOR (Hutton) IN FLORIDA

is the title of a short report we found tucked away in the "Notes and News" section of NAUTILUS 71(2):iii after 72, October 1957. The author of the report is Morris K. Jacobson, who discusses the finding of a single living specimen of this oriental snail by Mr. Harold Feinberg of the New York Shell Club. Please add this reference to the Jacobson bibliography published in NOTES No. 265.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

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The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 426, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, MAY 10, 1981, at 2:00 pm

PROGRAM: BEHIND THE SCENE TOUR OF THE MOLLUSCAN SECTION OF THE AMERICAN MUSEUM OF NATURAL HISTORY conducted by Dr. William Emerson and Mr. William Old

Don't miss this fascinating and informative program.

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Morris Karl Jacobson
SCHOLARSHIP FOR MOLLUSCAN STUDIES

Ronald B. Toll, a graduate student at the University of Miami, has been awarded the 1981 $500 scholarship grant by the Astronaut Trail Shell Club, Melbourne, Florida, to assist in completing his doctoral thesis on squids. Toll's research deals with the glasslike internal shell of over one hundred kinds of worldwide squids which are a major source of seafood in many countries. His studies are unlocking the secrets of ancestral relations between fossil and living species. Whales feed on squid but the only identifiable part remaining after digestion is the squids' internal shell, also called the gladius.

R. Tucker Abbott

HIGHLIGHTS OF THE MARCH MEETING

The first speaker was Mathilde Weingartner, whose subject was "Shellfish as food" - specifically, on the northern coast of Spain, during the Ice Age. The basis for present knowledge on the diet of the people of that time and area is the findings of an archeological dig. The site is a cave that was discovered about 60 years ago, but not thoroughly examined until recently. The workers went to the rear wall of the cave to start their excavations which covered a vertical distance of eight feet. The layering of the excavated material indicated that the cave had been inhabited and abandoned 36 times. Tools and bones showed that the tenants were hunters. Carbon dating of material found in the lowest layer indicated an age of 21,000 years. The first mollusk remains appeared in the fourth layer. The shells were those of the estuarine limpet, *Patella vulgata*. They were found also in layers five and six. *Littorina littorea* appeared at higher levels, followed by the marine limpet *Patella intermedia*, *Monodonta lineata* and *Mytilus edulis*.

The second presentation, by Mary Snediker and Sol Weiss, described a shelling and touring trip to the Philippines. The adventure was set in motion by the invitation of a Filipino gentleman whom Sol had met in this country. Mary covered the itinerary - chiefly Manila, Corregidor, Cebu, Bohol and Mactan - with the aid of slides showing general scenery, towns and beaches. Sol then commented on photos of some of the shells they brought back - most of them purchased, although the two did do some snorkeling. The genera covered were Angaria, Conus, Cypraea, Epitonium, Mitra, Murex, Spondylus and Voluta.

Milton Werner, Recording Sec'y

NOTIFICATION OF ESTABLISHMENT OF THE INTERNATIONAL CONIDAE SOCIETY:

The "International Conidae Society" project has been the brainchild of Mr. A. J. da Motta, a Bangkok businessman well known for his keen interest in the family Conidae. After several years of planning and discussions on the future of "ICS" it has been decided to make an interim start pending final and permanent location of "ICS" and its executive officer.

The aims and objectives of the Society will be the study and dissemination of information of the gastropod family Conidae. It will be a non-profit organization funded primarily by the "da Motta trust fund," although other sources of income towards specific research projects will also be explored. "ICS" will encourage a closer cooperation between the active amateur, particularly the field collector and the professional malacologist, discourage shoddy, unresearched descriptive work, and pursue the study of the Conidae family through literature research, field collecting, the da Motta reference collection and an active exchange of ideas and due consideration to faunal conservation.

The Society will be open to various grades of membership once it will become fully operational and in the position to accept subscriptions. The Society will keep in touch with members through an appropriate "House Journal," which shall not carry descriptions of new species but rather discuss member's problems, evaluate results of population studies, publish new range extensions, taxonomic changes and similar contributions.

A full list of officers of the Society will appear at a later stage. In the meantime enquiries should be directed to the interim Secretary of the Society, W. O. Cernohorsky, Auckland Institute and Museum, Private Bag, Auckland, 1., New Zealand.

A POSTSCRIPT

For color photographs of many Tent Cones, see Wagner and Abbott's STANDARD CATALOG OF SHELLS, 1978, pp. 25-000 - 25-008. The four plates picture 77 specimens, natural size, from the da Motta collection.

In their discussion of the family Conidae, Wagner and Abbott (ibid, p. 25-009) remark that "Altogether 3,550 names have been proposed in this family ... and until a competent revision is published there will continue to be a great deal of confusion ..." The ICS will work to this end.

A BREAKTHROUGH IN MARICULTURE PROMISES TO BRING BACK TROCHIDS

Jerry Heslinga

Man has found use for a variety of mother-of-pearl shells, but among them the Top-shell, Trochus niloticus Linne, is by far the most important. The hardness and thickness of the trochid shell make it especially sought after by the fashion designers and garment makers of Europe and Asia, who use mother-of-pearl primarily for buttons.

For over 70 years, the trochus industry has flourished in the islands of Micronesia and the South Pacific. Its success has been due in large part to an ambitious transplanting program that extended the original range of this species from the Indian Ocean and the tropical Western Pacific northward to the Mariana Islands, southward to the Cook and Society Islands, and eastward to the Carolines, the Marshalls and even Hawaii. The mass transplanting of trochus turned out to be quite profitable and - as far as anyone knows - relatively innocuous from an ecological standpoint.

After World War II it was feared that the development of plastics signalled the demise of the trochus industry. In fact, however, demand for natural mother-of-pearl has remained high. The price of trochus shell has increased by 500 per cent in the past ten years. Today trochus is a multimillion-dollar business in Oceania. About 5,000 tons of shells are harvested each year.

A greater threat than plastics to the trochus industry is overharvesting. Trochids, which feed on algae, are found in shallow sunlit waters of coral reefs, seldom deeper than a few meters. The adults are large, slow moving and not especially well camouflaged. This means that they are easy prey for skin divers.

On the islands of Oceania, where jobs and cash are generally scarce, diving for trochus is about as easy (and at least as profitable) as picking up quarters from the sidewalk. In addition, the trochus meat is a favorite local food, with a taste and texture almost indistinguishable from abalone. It's no wonder that conservation of this resource has become a serious problem.

A number of conventional regulatory measures have been introduced throughout the tropical Pacific to protect trochus from overfishing.

Although these conservation measures are well intentioned, they have not been effective. Violations of the three-inch size limit are common in Micronesia (20 per cent of Palau's 1979 harvest were undersize); the sanctuaries are routinely poached, and many fishermen openly collect trochus out of season.

Nearly every scientific paper on trochus since 1917 has cited examples of serious overfishing.

Almost as soon as it became apparent that trochus populations were being overfished, scientists and fisheries officials began to speculate about the possibility of reef reseeding as a conservation measure. It was agreed that reseeding would offer control over trochus populations, perhaps resulting in larger harvests, and certainly reducing the risk of local extinctions. Since these ideas developed as far back as 1930, several scientists have attempted to breed Trochus niloticus, but without success.

Biologists at the Micronesian Mariculture Demonstration Center (MMDC) in Palau re-attacked the problem of trochus conservation in

1979. Since then we have made exciting progress that should permit trochus "farming" to become a reality.

First, we have discovered that adult trochus held in captivity spawn naturally every month, late at night, around the time of the new moon. Knowing the schedule of natural spawning is of great advantage because it allows us to collect fertilized eggs by the millions.

Second, and most important, we have designed a hatchery system that allows us to raise large numbers (hundreds of thousands) of trochus larvae through the vulnerable planktonic stage to the benthic creeping stage. The same system is used for growing the tiny settled juveniles up to a diameter of about one centimeter, which we expect is an appropriate seed size for restocking depleted reef areas. The process of rearing trochus seed from eggs takes abour four months. Once released, the seed should grow to a harvestable size of three inches in about two years.

The MMDC's trochus hatchery is a good example of the application of "Appropriate technology" in a remote and undeveloped area. In the past, mariculture efforts in Micronesia and elsewhere in the tropics have had disappointing results. Western consultants tried to import exotic species and high technology culture systems that, for biological, economic and sociological reasons, were not adaptable to tropical situations. Attempts to introduce coldwater Japanese oysters to several South Pacific Islands is a case in point.

Our recent efforts to perfect trochus and giant clam mariculture in Palau reflect our commitment to the development of simplified culture systems based on economically important indigenous species. Mariculture of both trochus and giant clams is a technically simple procedure that relies completely on sunlight for algal food production. In both culture systems, labor and handling have been reduced, and the use of antibiotics or chemical water sterilizers has been abandoned.

In moving away from the "total systems control" approach, we have actually gained a better understanding of the behavior of our broodstock and larvae. Application of this knowledge has resulted in improved juvenile growth and survival.

The greatest expense encountered in culturing trochus and giant clam larvae, labor aside, is the cost of pumping sea water. With some imagination and foresight, however, this too can be minimized.

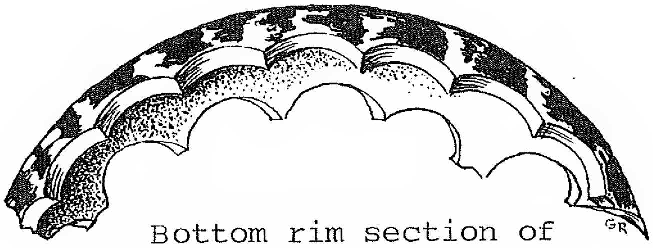
In LEVANTINA No. 27: 306-308, July 1980, from
HAWAIIAN SHELL NEWS, N.S. 244: 1 & 12, April 1980

CATALOGUE No. 143

Dorothy Raeihle

Mr. Heslinga's article on the mariculture of the commercial Topshell [Trochus niloticus Linne, 1767 (Tectus)] brought back memories of the first time we ever saw this shell. It was in the summer of 1949, during the years when our vacations were devoted to fishing. Shells found on the beach between fishing trips were interesting curios to add to a collection that included anglerfish jaws, strange marine growths, attractive conglomerates etc. Our trip that summer was along the Virginia coast, and two of the places we stopped were Chincoteague (where we took a side trip to see the wild horses) and Watchapreague.

It was at Watchapreague that we found Trochus niloticus. We were taking a walk along a road which followed the coast when we noticed in one area a number of shell fragments partially buried in the brown sandy/muddy soil. It must have been the flecks of color that caught our attention -- the usual shell fragments along the coast are crushed oyster shells. Of course we searched around a bit, and were delighted to find two complete shells among the many disfigured fragments. They were different from anything we had seen, even at Sanibel, and the fragments seemed to have been worked, so we inquired locally. We were informed that there used to be a button factory along there, and that they imported a lot of shells. George remembers that there was a building back off the road a bit; whether or not the factory was operative for very long or was ever reopened we do not know. At any rate, we had stumbled upon their trash heap. The two shells and one interesting fragment became a part of our collection: No. 143, Watchapreague, Virginia. We now know that the shells are undersized, both for legal collecting and for the working; they measure 2" and 2 1/2" high. George's accompanying illustration of the fragment is natural size; it is from an adult shell that measured 4" across the base and is a section of the base and body whorl, scalloped where the shell had been cut for the button blanks. The shell of the base is 5mm thick, that of the section of body whorl is 3mm thick tapering to half that thickness at the apertural edge. The cut edges reveal the shell layers: the outer layer, chalky white with dark red markings, is slightly less than 1mm thick; this is ground off to reveal the nacre.



Bottom rim section of cut Trochus niloticus

The method of cutting blanks from the Trochus seems to be the same as that described by Fred Tobleman in his article, FRESH WATER PEARL BUTTON INDUSTRIES, in NYSC NOTES 202.6, May 1974. We quote:

> Thin and off-color shells are rejected; the commercially usable shells go to a cutting plant where the blanks are cut out by a tubular saw run in a lathe as a stream of water plays on the saw -- different size saws being used for different buttons. The blanks are ground to the desired thickness and then go to an automatic machine which drills the holes and carves and edges them. Finally they are polished, then carded and packed in boxes for the trade.

ACKNOWLEDGEMENTS

Following the article in Hawaiian Shell News, "A Breakthrough in Mariculture Promises to Bring Back Trochids" (p. 3 of this issue), there were the following acknowledgements: "The development of Palau's trochus hatchery was made possible by grants from the Hawaiian Malacological Society, the East-West Center (Honolulu, and the Division of Marine Resources, U.S. Trust Territory of the Pacific Islands.

CYPRAEA CRUICKSHANKI Kilburn, 1972

Robert H. Janowsky

Every once in a while I tend to become rather blasé about shells that I see. It is usually at just such a time that something comes along that is so different that my complacency vanishes almost instantly. It was exactly during such a period of time that I first became acquainted with Cypraea cruickshanki. So vivid is my impression on first seeing the shell that I can recall almost perfectly the details and circumstances that brought it about:

Dottie and I were invited to visit NYSC members Dr. and Mrs. Donald Bosch who were making one of their all too infrequent visits to New York from their base in Oman. In the midst of the numerous shells of all sorts of species that were laid out on a bed for our inspection was this simply fantastic, inflated shell which Don told me was Cypraea cruickshanki. I knew little about the species other than the fact that it was very rare and that it was described a few years earlier by Dr. Kilburn in the Durban Museum NOVITATES, vol. 9, page 209. To actually see this species for the first time is a truly unforgettable experience.

To begin with, Cypraea cruickshanki has no close resemblance to any other species of Cypraea in the Recent fauna; there is just nothing that has its completely globular shape. I was, in fact, not at all certain if this shell should be truly considered a Cypraea, since quite a few of the morphological characteristics of the one specimen that I had seen suggested a close affinity to the Ovulidae. I have at this point seen probably more than a dozen specimens, all markedly similar with only minor differences, and am now of course fully convinced that the shell is a Cypraea and a very interesting one at that.

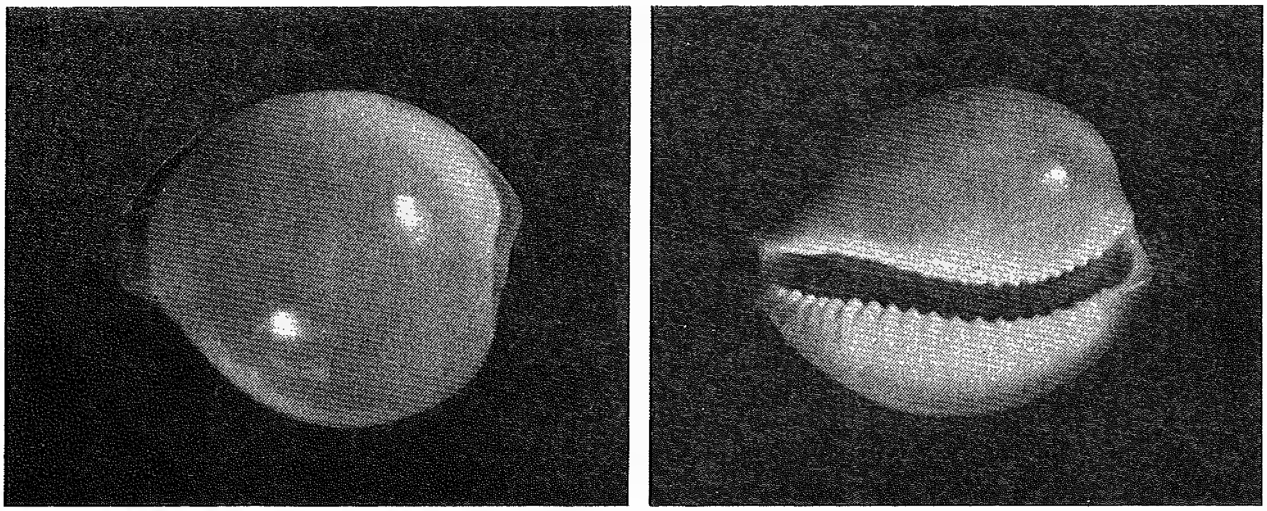
So globular is the shape of cruickshanki that one is almost immediately fooled into thinking that one is looking at an immature specimen, since almost no columellar margin is present. A second look at the thickened labial callus and thickly glazed-over spire will at once dispel this notion. The second most notable feature of this species is rather subjective, but one that is readily apparent on picking it up -- it is extremely light in weight in relation to its size. It not only looks like a bubble, it feels like a bubble, too. Cypraea cruickshanki also has a very strange, almost translucent glaze on its dorsum. The specimens I have examined could all be put into two distinct categories: those with a translucent flesh/pink dorsum and those with a chalky/white dorsum. In addition a third type which, insofar as I can determine is unique to the holotype, has the chalky/white dorsum but has a few irregular but distinct orange marginal spots. This specimen is nicely illustrated in Walls' COWRIES, second edition, on page 202 (T.F.H. Publications, Inc., 1979).

Apart from this, all of the specimens that I have seen have been remarkably similar. The canals, the spire blotch, and the labial callus are orange. This color extends to the teeth near the canals. The remainder of the base is either white or flesh color, generally of a lighter shade than the dorsum. A faint but raised and thickened callus is found just beyond the aperture on the columellar side of the base. This callus is most thickened at the middle of the base. The labial side of the base is dull from the aperture to the start of the flared labial callus. Often I have seen bits of foreign matter embedded in this portion of the shell and between the labial teeth.

The specimen here illustrated is the type with the flesh/pink dorsum. It is about typical in size for the species, measuring 31.2mm in length, 25.9mm at its maximum width and 21.5mm at its maximum height. This specimen is in the collection of Mrs. Deena Martin of Baldwin, New York. For comparison, the measurements of a second specimen, belonging to Mr. and Mrs. Michael Mulberger of Scottsdale, Arizona, are 29.4mm length, 24.4mm width, and 21.2mm height. Last November I ran into one more specimen that must be mentioned here since it is extraordinarily large and has very well developed and distinctly formed teeth (23 labial and 24 columellar teeth). Its size: 33.7mm in length, 27.3mm in width, and 23.2mm in height. It is in the collection of George Hickok of Windsor, Connecticut.

The shell illustrated here has 24 rather fine white columellar teeth. These teeth barely extend onto the base since the columellar callus is so close to the aperture. The columella is roundly inflated and a shallow fossula is present above the anterior canal. There are several thick but irregularly formed inner teeth above the fossula. There are 19 labial teeth, all well formed. Those nearest the canals extend almost to the labial callus, while those in the mid-portion of the shell reach only about halfway to the callus.

This is apparently a very deep-water species and is generally collected from waters in excess of 300 meters depth off Durban, Natal, South Africa. The shells are collected by commercial fishing trawlers. It is a great wonder how any species so seemingly fragile can survive in the great pressure of such depths -- but that is only one of the very strange things about this very interesting species.



Cypraea cruickshanki Kilburn, 1972
L. 31.2mm, W. 25.9mm, H. 21.5mm,
off Durban, Natal, South Africa.
Collection of Mrs. Deena Martin.
Photograph by Robert H. Janowsky.

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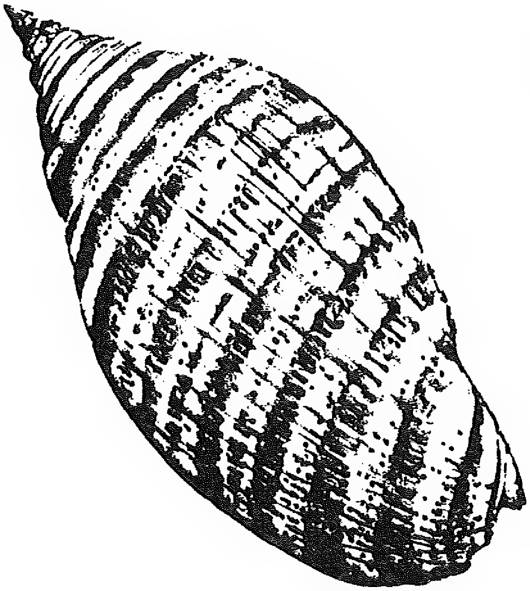

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NEW YORK SHELL CLUB OUTING

Join fellow members of the New York Shell Club for a day of sand, sun & snails!

DATE Saturday June 27, 1981

PLACE Canarsie Pier, Brooklyn, NY

TIME 10:00 A.M.

BRING a picnic lunch, sturdy shoes or sneakers for walking and wading (area where shells may be found is muddy at low tide), something to carry any shells that you may find, beach blanket or chairs if desired. Rest room facilities are available on the pier.

DIRECTIONS

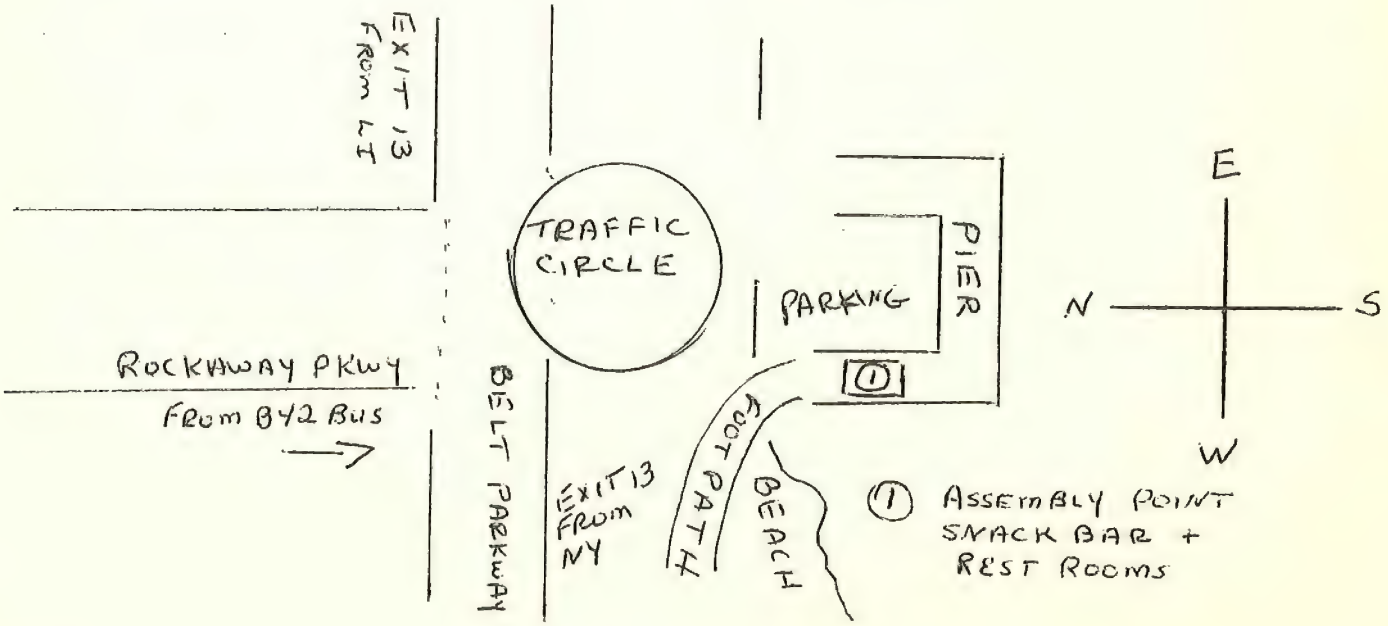
BY PUBLIC TRANSPORTATION Take LL train on Canarsie 14 Street Line (this connects with the A train at 14 Street & 8 Avenue) to last stop which is Rockaway Parkway. Walk to front of subway station and take free bus #B42 which picks up passengers inside station. Take bus to last stop on Rockaway Parkway, then walk straight ahead through underpass and around circle to right hand pier area.

BY AUTO Take Belt Parkway EAST to Exit 13 and make right turn into parking lot.

Take Belt Parkway WEST to Exit 13 and make left turn at first traffic light. Proceed halfway around traffic circle and enter parking lot.

We will meet at 10:00 A.M. in front of the refreshment stand. If you're late, just follow the path to the right facing the refreshment stand and the water and look for us.

In case of rain, the outing will be held the following day, Sunday June 28, at 11:00 A.M. (The change in time reflects the difference in low tide.) If the weather is doubtful on Saturday, call Bob & Dottie Janowsky (212) 485-3550 before 9:00 A.M. Saturday.



The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 426, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, JUNE 14, 1981, at 2:00 pm

PROGRAM: DISCUSSION OF SHELL EXHIBITION

SLIDE PRESENTATION ON SHELL SHOWS by William Old

NOMINATION AND ELECTION OF OFFICERS
Nominations can be phoned in to Bob Janowsky, Nominating Committee Chairman (485-3550) prior to the meeting

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HIGHLIGHTS OF THE APRIL MEETING

The annual social meeting was held on April 12th at the Broadway Dance Studio in Astoria, Queens, thanks to the generous cooperation of our member Dorothy Jensen.

President Fred Cannon noted the presence of several distinguished visitors, and introduced them: Drs. William Clench, R. Tucker Abbott and William K. Emerson, and Mr. Peter Dance. He also introduced Mr. Francis Aronson, a visitor from the philippines who is a friend of Sol Weiss.

The major program feature was the auction, presided over by Bill Old, with the assistance of Sol Weiss and Bob Janowsky. Bill opened the auction by offering three volumes of JOHNSONIA, which drew a top bid of $30. Other noteworthy items were two paintings featuring shells, donated by artist Al Scarpetti, which went for $15 and $20; a *Murex bednalli* donated by "The Collector's Cabinet" brought $90; *Syrinx aruanus*, $8; *Conus janus*, $16; *Murex serratospinus*, $10; *Cypraea semiplota*, $20; yellow *Chlamys nobilis*, $12 and $13; *Spondylus americanus* and *ducalis*, together $19; *Spondylus regius*, $11; *Strombus peruvianus*, $20.

As they have in past years, Lee and Frank Nelson handled transactions at the well-stocked sale table.

The door prize, two *Chlamys nobilis*, orange and purple, was won by Merle Odenwald. The raffle prizes were a *Charonia tritonis*, won by Betty Renman, and a copy of A COLLECTOR'S GUIDE TO SEASHELLS OF THE WORLD, by Jerome Eisenberg, which was donated by "Seashells Unlimited, Inc." and won by Mary Ruth Foglino.

Peter Dance announced that he and Tucker Abbott are collaborating on a shell book. Its coverage will be worldwide, and it will describe over 4,000 species and have 4,300 illustrations.

Cocktails and punch were followed by a buffet supper featuring four hot entrees. Dessert was an excellent selection of cakes, all donated and some homemade.

Milton Werner, Recording Secretary

ANNOUNCEMENTS:

WSM MEETING JUNE 23-26

The Western Society of Malacologists (WSM) Meeting will be held at San Diego State University from June 23-26, 1981 with the San Diego Shell Club as hosts. There will be symposia, contributed papers, workshops, field trips, exhibits, a shell auction, banquet and other activities. Deadline for reservations was May 10, but for further information contact Dave Mulliner, 5283 Vickie Drive, San Diego, California 92109.

FESTIVUS XIII(4) April 1981

AMU MEETING JULY 19-25

Do plan to attend the gala 50th Anniversary Meeting of the American Malacological Union, to be held in Fort Lauderdale July 19-25, 1981. In addition to contributed papers, there will be a number of special events: The President's Reception, Sunday the 19th; Texas Party, Monday the 20th; Shell Auction; Book Auction; Autograph session and Identification clinic; Workshops for Hobbyists (4 different sessions) Underwater Photography, Fossil Shells, Marine Aquaria, Freshwater Snails. The Symposium on functional morphology and ontogeny of Mollusca will be held July 20. The banquet will be held Friday, July 24th, and you will have a choice of field trips for Saturday, the 25th.

Headquarters will be the Galt Ocean Mile Hotel, 3200 Galt Ocean Drive, Fort Lauderdale, Florida 33308. Special rates for AMU delegates are $35 for a single or double room; $45 efficiency, $55 studio, $70 suite -- all prices plus 6% Florida tax. Reservation cut-off date for the hotel is July 1. The hotel has a policy of no pets.

(The AMU information sheet notes that "Fort Lauderdale has a multitude of hotels and motels along the beach and in town" for those who would prefer other accommodations. For information on trailer parks or pet accommodations, contact Gene Everson, local meeting chairman, 5224 N.W. 17th Court, Lauderhill, Florida 33313.)

Pre-registration fee (includes group photo) $20, after June 10, $23.

You do not have to be a member of AMU to be eligible to attend the meeting; your friends and families are welcome.

COA CONVENTION SEPTEMBER 2-5

The 1981 Convention of the Conchologists of America will convene in San Francisco on September 2-5, 1981, hosted by the Northern California Malacozoological Club. The convention site will be the Miyako Hotel in the Japan Center, and hotel room rates have been set at a flat rate of $60.00 per night, for a single or double. These rates were specially arranged for the C.O.A. and are lower than the normal rates for this time of year.

COA BULLETIN No. 22, Dec. 1980
Richard Goldberg, Editor
49-77 Fresh Meadow Lane
Flushing, New York 11365

AN EXHIBIT OF WORLDWIDE SHELLS

A beautifully arranged exhibit of shells, lent from the collections of Long Island Shell Club members, opened April 12th at the Garvies Point Museum, Barry Drive, Glen Cove, New York 11542 (Phone 516: 671-0300). Entitled "Conchs, Cones and Cowries, Sea Shell Treasures," the exhibit will run through August 2, 1981. The shells are grouped as to geographical areas and include collector's items, ranges of species within a genera (such as the delicate Latiaxis and the ever-popular Murex), pearly freshwater bivalves, fossils, freaks, etc. Unfortunately the museum is not easily reached by public transportation; it is situated high on a bluff overlooking Hempstead Harbor in what is primarily a residential area (Glen Cove Road and by-pass to Glen Cove Fire House, then follow the signs).

Permanent exhibits are devoted to regional geology and Indian archaeology .... The preserve consists of sixty-two acres of glacial moraine covered by forests, thickets, and meadows. There are about five miles of trails. High cliffs along the shoreline exhibit erosional features such as alluvial fans, talus slopes, and slumping caused by ancient multi-colored clays oozing from the beach. The area was formerly known as "Appleby Beach" (See NOTES 63, p.7 -Ed.). No specimen collecting is permitted.

KATSARAS AUCTION

Nick Katsaras is planning to hold an auction of shells at the Broadway Dance Studio in Astoria in September 1981, date to be announced. He did not state whether this would be his last or next-to-last auction.

CAVEAT EMPTOR

(A letter to Bob Janowsky. The writer prefers to remain anonymous.)

12.2.81

Dear Mr. Janowsky:

I have today returned from holiday in Kenya, and have found a) your letter and b) the parcel of shells, for both of which many thanks. I am at a loss to explain the delay in receipt of the parcel which arrived while we were away -- I suspect the reason is that our U.K. customs people had opened the parcel, and probably then spent weeks trying to work out under which heading of the Customs Code cowry shells should be recorded for duty purposes. Or did they expect diamond smuggling? Your guess is as good as mine. But the panic is over.

I searched a few of the reefs from Shiwoni in the south to Lamu in the north for cowries and spoke to numerous dealers in shells. The trade is not so much affected by the existence of national parks and regulations governing the collecting of shells, as by the tourists and deceit. The tourists pay very fancy prices for shells such as Cypraea argus and Cypraea mappa -- $30 to $50 a time, and thus have created a two-tier market, where the demand for the nicer shells outstrips availability locally; even a Cypraea histrio fetches $4.00 from a tourist, and a Cypraea helvola -- albeit an extremely good one -- sold for almost $6.00. In the circumstances, the opportunity is created and readily exploited for deceit, with local dealers importing from the Philippines to supply shells of guaranteed East African origin! Some of the rarer East African cowries, Cypraea boivinii, C. stolida and C. cribraria are, so one dealer I have known for years, now supplied exclusively from non-East African sources! I could not today trust any of them. I did see non-East African Cypraea stolida which I bought for $7.50, and of the several C. mappa I saw, none were of the characteristic orange-toothed type previously found in East African waters (Cypraea mappa alga).

The truth is that the market is geared to supplying the fancier shells to the tourists, and the reef collectors are not paying attention to the smaller varieties, which still exist in the same quantity as previously on the reefs.

I was told that the place to buy genuine East African shells these days is Tanga, but as the Kenyans are not allowed to trade with the Tanganians, I wouldn't rely on that comment.

Despite all the chicanery and bribery, now the fashion in everything Kenyan, we had a wonderful holiday and quite good shelling.

UNIQUE CORAL REEF STUDIED

Harbor Branch Foundation,* Fort Pierce, Florida, in cooperation with scientists from the National Oceanic and Atmospheric Administration and Texas A. & M. University, has completed a study of the East Flower Garden Bank, a living coral reef located 110 nautical miles southeast of Galveston, Texas. The reef is an extruded salt dome structure that is unique because it is capped with a coral reef on top and possesses a natural brine seep on one flank. The brine seep forms an underwater lake 100 yards in diameter which is nearly seven times as saline and dense as the surrounding water.

A total of 19 dives, ranging in depths of 18.2 meters to 107 meters were conducted to observe and record the fauna and flora associated with the reef and brine seep.

Because of the coral reef and the unique sulfur-dominated community in the brine seep, the area has been nominated by NOAA's Office of Coastal Zone Management as a new marine sanctuary.

From: SEA TECHNOLOGY of
December 1980 p.26

* See: "A Visit to Harbor Branch Foundation" by Morris K. Jacobson, NYSC NOTES No. 250, p. 6, March 1979.

(Editor's note: The unexpected discovery of a coral reef off Texas "where it wasn't supposed to be" was an exciting find for malacologists and other scientists. We are pleased that the area may be declared a new marine sanctuary.)

EXPLORING THE UNDERWATER ANCIENT SEA CLIFFS AN ECOSYSTEM*

David K. Mulliner
Department of Marine Invertebrates
San Diego Natural History Museum

Ecosystems, regardless of size, consist of an assemblage of plants and animals linked by a fundamental need -- food. All of the energy (sunlight) and materials (minerals) originate basically in the physical environment. In the ecosystem living things absorb, transform, and circulate energy and matter and then release them to the environment again. The final release comes at death.

The ecosystem that is of greatest interest to me at this time is the rocky reef area off Point Loma (California) on the outer edge of the giant kelp (Macrosystis pyrifera) beds. The reef is as shallow as 50 feet in some places and drops on the seaward side as sheer cliffs to depths of more than 100 feet. This area is known as "The Ancient Sea Cliffs" and it does look like the sea cliffs along the present day Point Loma shoreline. The sun's rays reach down tenuously to start the flow of energy into the abundant algae. Upwelling brings minerals up from the depths. The open sea sweeps against the cliffs bringing food (plankton) to the filter feeders. And so the physical environment and the organisms interact with each other to form the ecosystem.

The diversity of life on the ancient sea cliffs is greater than in most areas. It begins with the giant kelp, Pelegophycus porra, which reaches to the surface with its big buoyant ball and giant blades. The gastropod Norrisia norrisi can occasionally be found here, also the opisthobranch Melibe leonina. As we swim down to the top of the reef we see the rocks covered with dozens of species of algae. Fish abound, from the Cleaner Wrasse, Senorita, Sheephead, and Goby to the Rockfish, "Sebastes." Growing along the cliffs among the sea anemones, Corynactis californica, are the lacy bryozoans, Phidolopora pacifica. Living and feeding on the bryozoans is the Ringed Top-shell, Calliostoma annulatum. Hydroids, Aglaophenia and Tubularia, are found here and so are the many aeolid nudibranchs that feed on them. The cliffs are an excellent habitat for the Rock Scallop, Hinnites giganteus. Many sponges are found on the reef. They are the prey of the many Dorid nudibranchs such as Archidoris montereyensis, Cadlina marginata, Anisodoris nobilis, and Dendrodoris fulva.

In the cliffs and along the base are many ledges and caves. Abalone can occasionally be found on the underside. Lobster hide in the caves along with Ling cod and cabezon. Dive at night and you might see the Monkey-faced Eel.

At the base of the cliffs are jumbled rocks, mud and sand. There are many open and barren areas in contrast to the high density of life on the reef. The water is much colder here; we are below the thermocline. Many gastropods are found in this area: Pteropurpura macroptera, Pteropurpura vokesae, Mitra idae, Kelletia kelletii, Bursa californica, Crassispira semiinflata, Megasurcula carpenteriana, Megasurcula stearnsiana etc.

Our air supply is running low so we swim back to the surface. Point Loma, two miles inshore, rises in steep cliffs 30 to 100 feet high and then slopes upward. It is off this part of San Diego that we make our weekend dives exploring, photographing and collecting.

*From a talk given to the San Diego Shell Club by Dave Mulliner.

Reprinted from FESTIVUS XII(8):93-94, August 1980
Publication of the San Diego Shell Club

ICE-AGE SUBSISTENCE IN NORTHERN SPAIN

Lawrence Guy Straus[1], Geoffrey A. Clark[2],
Jesus Altuna[3], and Jesus A. Ortea[4]

(A synopsis of the article, entitled as above, which appeared in SCIENTIFIC AMERICAN 242(6): 142ff, June, 1980, and was the basis for the presentation, "Shellfish as Food," by Mathilde Weingartner at the March 1981 meeting of the New York Shell Club.)

The four authors report on the findings in a cave at La Riera on the Biscay coast of eastern Asturias, Spain. The cave had been discovered some 60 years earlier by the Spanish prehistorian, the Conde de la Vega del Sella. This new research entailed four seasons of excavation under the direction of Professors Straus and Clark, concentrating on an undisturbed section at the rear of the cave vestibule where 36 levels of occupation were discovered within a vertical range of 2 1/2 meters (about 8 feet). The lowest level (No. 1) was carbon dated to more than 21,000 years ago. The succeeding levels revealed changes of fauna and flora and the development of tools through a 12,000 year period, from about 19,000 B.C. to 6650 B.C. Of the material excavated, Dr. Altuna handled the analysis of the mammalian remains and Professor Ortea the molluscan research. The four authors had the assistance of 18 specialists in fields varying from oxygen-isotope analysis to sedimentology.

The cave at La Riera is located on the south face of a low ridge about 1.5 km from the present coastline, above a river and estuary which connect with the coast, and about midway between the cities of Oviedo and Santander. During the glacial age the water level was at least 100 m lower and the coast 10 km further out. It was a rocky coast with steep slopes. The temperature was somewhat warmer near the coast, moderated by the sea; the glacier itself never reached the Spanish mainland.

What kind of people lived here? They were post-Neanderthal men. They were food gatherers and hunters, not planters. They were Stone Age people, using stone, wooden or bone tools. They were wanderers, sometimes living in the caves for only a short time, sometimes for longer periods. They hunted red deer, chamois, ibex, horses, and a bovine that was probably the European bison. Also, they no doubt ate plant material such as berries, nuts, fruits, greens etc. as pollen studies indicated that such was available.

The remains of this material might be called solid waste, and maybe some day our landfill areas will furnish information about us in

[1] Associate Professor Anthropology, University of New Mexico
[2] Associate Professor, University of Arizona
[3] Director Paleontology, Soc. de Ciencias Arandusi, San Sebastian
[4] Assistant Professor Zoology, Universidad de Oviedo, Spain

the same way.

The earliest three levels brought up a few stone and bone tools and some mammalian remains. Apparently the people did not get as far as the sea (10 km) nor did they explore the estuary or river much for food -- there must have been plenty of horses and deer around.

The first molluscan remains appear, along with evidence of salmon and trout, in levels 4, 5, 6 and 7, laid down in periods close to 21,000 years ago. These were shells of the limpet Patella vulgata, a species that grew in estuaries, and to a size of 4 cm. The limpets were so numerous that in level 4 their remains made up 70% of all animal remains by weight. At level 7 were the first pits for cooking; the people had lined them with stones and built fires in them. After the fire was removed, the hot stones did the cooking. Since the levels were shallow, the evidence is that the area was used for short periods only. This was more than 20,000 years ago and represents the height of the Ice Age.

In the levels laid down during the next 7,000 years molluscan shells were not so numerous and their size had somewhat diminished (due to overfishing?) which could have made them not as worthwhile. Littorina littorea, the common periwinkle, had put in an appearance, but as the glacier receded and the waters became warmer it, too, diminished. However, Ice Ages being what they were, the glaciers advanced and receded numerous times, changing the climate for man, beast and fish.

In level 20, 13,000 to 12,000 years ago, the estuarine Patella vulgata is joined by the more marine Patella intermedia, Littorina littorea, and the Top shell, Monodonta lineata. The last two species occur on rocky coasts, and these with mussels and sea urchins give evidence that food was also gathered from the open shore. Since the Littorina and Monodonta were found whole, it is assumed that they were boiled or steamed in some sort of vessel and then picked out with a tool such as a thorn, a thin piece of bone or a wooden sliver (it comes out easier after cooking).

A thousand years later, in level 24, the shells of Patella vulgata are smaller, again possibly due to overfishing, and the smaller species, Patella intermedia, becomes more prevalent. However, it may just be that the people gathered more of their food from the open ocean, rather than from the estuary where Patella vulgata grows larger.

In levels 25 - 28, averaging 10,000 years ago, there is an increase in the proportion of molluscan to other animal remains, even though the shells are smaller. Level 27 is virtually a shell midden, and in level 28 shells outweigh animal bones by 4.6 - 1. For the first time, Monodonta outweigh Littorina.

Level 29, which is virtually cemented to the ceiling of the cave, dates back to 8,500 years ago and marks the retreat of the glacier: the climate is warming up, Littorina has disappeared, Patella vulgata is being replaced by Patella intermedia. The nine species of mollusks now include land snails. The research report ends with a discussion of probable reasons for the emphasis by these early peoples on seafood. It is interesting that 21,000 years ago marine sources were ignored, and 10,000 years ago they were overfished.

Patella vulgata is still a common food source today in Eastern Europe and Great Britain, from the Arctic to Spain. In areas where it is forbidden to take them, because of pollution, they rapidly increase in size. This leads one to believe that overfishing is the reason for the smaller specimens.

Synopsis by Mathilde Weingartner

According to Julia Rogers, the Patella vulgata are solid, have a conical peak slightly in front of center, are greyish brown to yellowish and mottleds. The inside lining is polished, sometimes opalescent, sometimes brighter color inside. Woodward calls them Rock Limpets, living on rocky shores between tides, where they are left high and dry twice a day. In calcareus rock they form a slight depression. They adhere very firmly to the rock. They feed on small algae, which they scrape from the rock with their rasping tongues. They don't move very far from their roost, and return to it regularly. They may also seek shelter among crevices in the rock. They move slowly and cautiously. Brehm's "Tierleben" says that they lay down a slimy trail, along which they then retreat back to their roost when the tide recedes. When they return to the roosting place they attach tightly and are hard to remove in the beginning. After a while, particularly at night, their muscles relax somewhat and they are more easily removed.

Mathilde Weingartner

MOLLUSKS IN MEDICINE

The Green-lipped Mussel

The following item is reprinted, with our thanks, from the December 1980 issue of THE CONCHOLOGISTS' NEWSLETTER, No. 75, page 283:

> CONCLUSION OF CLINICAL TRIALS OF PERNA CANALICULUS, the New Zealand green-lipped mussel for the alleviation of arthritis by an anti-inflammatory agent.
>
> Work began with a Perna canaliculus preparation five years ago. The mussel extract, enclosed in capsules, was prepared by Mcfarlane Laboratories, Auckland, New Zealand. The patients were chosen from the joint surgery waiting list of Victoria Infirmary, Glasgow. The results to date suggest Perna canaliculus "reduces the amount of pain and stiffness, and improves the patient's ability to cope with life" with "low incidence of side effects."
>
> A detailed account of the trials is published in the September 1980 issue of "The Practitioner" (£1), journal of postgraduate medicine, 30 Calderwood St., London, SE18 6QH.

Betty M. Smith

QUEEN CONCH CULTURE

Techniques for mass-rearing of the queen conch (Strombus gigas) are being developed by Drs. Edwin S. Iversen and Scott E. Siddall of the Rosenstiel School of Marine and Atmospheric Science (University of Miami). This work, which is funded by the Wallace Grove Aquaculture Foundation, was sparked by the fact that the queen conch is heavily overfished. This popular mollusc is the main ingredient of West Indian chowders, seviches, and fritters.

Siddall is concentrating on the hatching and raising of larval queen conchs to the juvenile stage. After hatching fertile egg strands collected in the Bahamas and testing for the best tank population densities and type of algal food, he determined the requirements for culturing conch larvae in great numbers. In fact, several hundred of the hatchlings developed small coiled shells and dropped to the tank bottom to forage for food in the manner of adult conchs.

Iversen is focusing on the next stage -- the growing of juvenile conchs to marketable size in enclosures, or raising them for release in nature to augment natural stocks. His team collected, tagged, and placed queen conchs less than 4 inches in length in special pens in shallow waters of the Berry Islands. Other small conchs were tagged and released near the pens as controls and at other locations nearby. Tagged conchs were located and measured monthly to determine growth rate and survival. Based on the data collected thus far, Iversen estimates that the penned conchs, which are protected from their enemies, will have a survival rate of 57 percent per year, compared to a rate of only 15 percent for those outside the pens.

Reprinted from SEA SECRETS Vol. 25,
No. 2, p. 11, March-April 1981, a
publication of The International
Oceanographic Foundation, Miami 33149

REPRODUCTION IN STROMBUS GIGAS

(Excerpt from CONCH INDUSTRY in the Turks and Caicos Islands, by C. O. Hesse and Kathy Hesse. UNDERWATER NATURALIST, July 1977.)

Once fertilized by the male, the female Strombus gigas lays an egg mass, (a thin clear strand of eggs), which looks very much like a piece of clear monofilament fishing line when it emerges. As it emerges, sand grains stick to it. The female deposits about 500,000 eggs in a mass the size and shape of a fat banana which is camouflaged by the coating of sand. A female takes about 24 hours to lay a complete egg mass.

The eggs hatch in three to five days. A newly hatched conch is almost invisible and has no heavy shell. During its first four to five weeks, while in the veliger stage, the tiny conch swims and drifts about in the water. They are subject to extreme predation, as they are fed upon by the zooplankton.

When the conch veliger reaches a size and weight not much larger than a big grain of sand it undergoes metamorphosis, a change which heralds the transition from a free-swimming to a bottom-dwelling existence. Now, the tiny conch with its very small white shell (locally called a "creaker") seeks a hiding place between the sand grains. There it remains for the next year of its life, emerging only on dark nights to feed. It remains hiding in the sand until it is about 3 1/2 to 4 1/2 inches long and about one year old.

At about seven inches in length and about three years old the conch starts building its shell into a flaring lip. The conch will reach breeding maturity three to six months after the lip has been built and thickened.

VERONICA PARKER JOHNS
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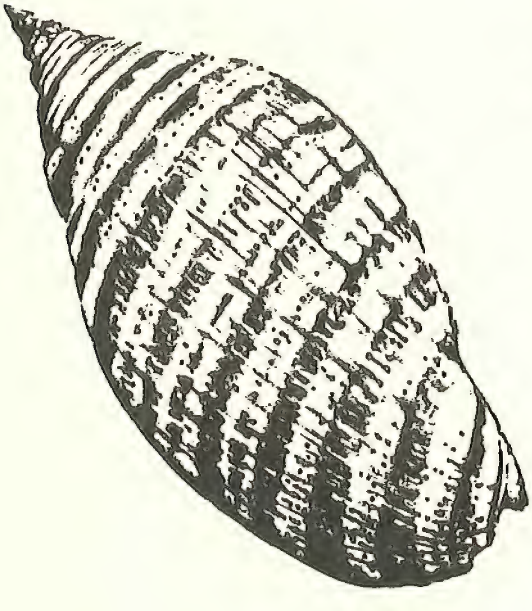

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The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 426, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, SEPTEMBER 13, 1981, at 2:00 pm.

PROGRAM: REPORT ON A.M.U. MEETING by William Old
SHELL SHOW TECHNIQUES by Fred Cannon and Robert Janowsky

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STERKIANA REVIVED

We are happy to announce the revival of STERKIANA. The publication, devoted to freshwater and terrestrial mollusks, was for many years published in Columbus, Ohio, under the editorship of Dr. Aurèle LaRocque. It was suspended with No. 69-70 dated March 1978.

No. 71, January 1981, is just out, and consists of 51 pages. For information write to the new editor, John M. Bates, Box 402, Shawsville, Virginia 24162.

KATSARAS AUCTION SEPTEMBER 20

Nick Katsaras has again accumulated a few hundred shells and will hold another of his popular auctions on Sunday, September 20th, at the Broadway Dance Studio, 31-08 Broadway, Astoria (for directions to the studio, see NYSC NOTES No. 271, page 1).

Nick will offer worldwide shells, some of which he describes as "really fantastic." The shells will be on display from noon to 1:00 pm. The auction is scheduled to begin at 1:00 pm and continue to about 6:00 pm.

SHELL DESK DIARY, 1982

The announcement of the publication of the 1982 SHELL DESK DIARY arrived too late to be included in our summer issue. A deadline of June 1st was given for guaranteed delivery in November. However, those interested should take a chance that some copies may still be available and write promptly to: Shell Desk Diary, P.O. Box 2663, Houston, Texas 77001, enclosing $4.00 for each Diary desired.

NYSC LIBRARIAN

Please note that Frank Nelson has now undertaken the job of Club Librarian. Frank has long worked as assistant to retiring librarian Harold Feinberg, and has trundled many a cartload of materials from the library to the meeting room and back again.

From now on, members requesting books from the library or in need of a library list should contact Frank directly, as much in advance of a meeting as possible.

BROOKS MC CORMACK

We are saddened to report the death on July 3, 1981 of our member Brooks McCormack at age 64. Brooks had been a member of our club for more than twenty-five years; he had a particular fondness for Cones and Volutes. Because of declining health, in recent years his visits to our meetings were few.

Brooks, the son of John McCormack, was also a musician and tenor who sang leading roles with opera companies in this country and abroad.

Our condolences to his family and to his many friends.

HIGHLIGHTS OF THE MAY MEETING

President Fred Cannon noted the presence of several long-time members who had not been able to attend meetings recently, and introduced three first-time visitors.

Al Scarpetti, advertising manager for NYSC NOTES, announced that the ads of additional clients will soon be appearing.

The feature event of the day's program was a tour of the workrooms and the shell collection of the Museum's Department of Invertebrates on the fifth floor. It was handled as the first such tour had been three years previously. Dr. William K. Emerson, Curator of Mollusks, described to half the group three projects in which he is currently involved, displaying and explaining the shells, literature and equipment with which he is working, and commenting on the broader aims and concerns of the department. Bill Old, Scientific Assistant, led the rest of the group on a tour of the shell-storage cabinets, pointing out specimens of special interest, and describing the intricacies of cataloguing, labeling and arrangement. The groups then switched, and the leaders repeated their tours.

Milton Werner, Recording Sec'y

HIGHLIGHTS OF THE CLUB'S 300th MEETING, JUNE 1981

President Fred Cannon asked for comment on the question of repeating our annual donation of $100 to the Museum. It was suggested from the floor that we raise the amount to $150. This was made a motion, seconded and carried.

The shells in the display case were cowries from Monique Caubere's collection. Most were varietal examples, some of them unusual as to size. A few were freaks.

(continued on page 3)

Fred read a letter from Henry Schulson, of the Museum's Membership Association, regarding our shell show. It stated that the dates and hours will be Saturday, November 21, noon to 4:30, and Sunday, November 22, 10:30 to 4:00. The place will be the Education Hall or the Auditorium. Mr. Schulson offered suggestions as to the exhibits and possible activities, and outlined the ways in which the Museum will support the show. These will include publicity in NATURAL HISTORY MAGAZINE and in the Museum's staff periodical, ROTUNDA. The Club's share of the projected maximum cost of $1,100 will be as high as $200. The letter suggested an admission fee of $2, and if this should produce income above expenses our cost will be reduced. Fred also showed a small, portable display case of the type that the Museum will lend to us in quantity.

The major item of new business was the annual election of officers, for which Fred turned the chair over to Bob Janowsky, chairman of the Nominating Committee. Bob reported the committee's feeling that, with preparations for the shell show in progress, it would be best to continue Fred Cannon's able presidency into an unprecedented third term. Bob then recommended reelection of all officers. There were no nominations from the floor, so Bob moved that the secretary be empowered to cast one ballot for the entire slate. The motion carried. Fred announced that the directors appointed for the new term were Bill Old, Waverley Harmon and Harold Sussman. Fred then noted that Librarian Harold Feinberg can seldom attend meetings, and moved that Assistant Librarian Frank Nelson be appointed librarian, and that Al Scarpetti, Nick Katsaras and Dorothy Raeihle be reappointed as advertising manager, historian, and NOTES editor, respectively. The motion carried.

The speaker was Bill Old, who showed slides he had made over the years while acting as judge at shell shows at Sanibel, St. Petersburg, Fort Lauderdale, St. Louis, Sarasota and Virginia Beach. His comments included observations on the way in which the Sanibel show began, and grew to its present prominence, and on the exhibits seen in his photos and the collectors who had created them.

Milton Werner, Recording Sec'y

OF MURICODRUPA JACOBSONI, n. sp.

In NAUTILUS 95(2) 77-82 (April 30, 1981), in a paper entitled "Remarks on Muricodrupa Iredale, 1918 (Muricidae: Thaidinae), with the Description of a New Species," William K. Emerson and Anthony D'Attilio present the description of Muricodrupa jacobsoni, known only from Melanesia. They announce: "We name this new species in the cherished memory of a longtime friend and valued colleague, Morris Karl Jacobson (1906-1980), in recognition of his many and varied contributions to the field of malacology."

Muricodrupa jacobsoni is described as "matte white ... shell moderately large for the genus, attaining 35$^+$ mm in height ... (and) together with its species-group congeners, is characterized by the prominent cavernous excavations between the varical and spiral ridges, which form squarish pits. It is readily distinguished from its closest relatives by the extended narrow form of the shell, the blunt spire and broad canal." Comparisons are made with Muricodrupa funiculus (Wood, 1828).

dr

TREASURER'S REPORT FOR THE YEAR ENDING JUNE 14th, 1981

	BALANCE June 8, 1980	$1,076.47
RECEIPTS:		
Advertisements	600.00	
Dues	1,426.00	
Bank interest	46.75	
Party proceeds	548.29	
Bank error	1.00	
	2,622.04	2,622.04
		3,698.51
DISBURSEMENTS:		
NYSC NOTES	784.51	
Other printing	390.94	
Editor's expense	231.92	
Equipment (typewriter)	322.99	
American Museum	90.00	
Postage	325.77	
Drawings for ads	11.34	
Miscellaneous	145.14	
	2,302.61	- 2,302.61
	BALANCE June 14, 1981	$1,395.90

Mathilde P. Weingartner, Treasurer.

AMERICAN MALACOLOGICAL UNION, FORT LAUDERDALE, 1981

The 47th AMU Meeting July 19-25 in Fort Lauderdale celebrated the 50th anniversary of that society, and we believe it was the largest meeting to date. Two hundred and twenty were registered; families and friends brought the number to around three hundred. We congratulate the host group -- the Broward, the Greater Miami and the Palm Beach County Shell Clubs -- and the officers of the AMU for their handling of the meeting with its infinite details.

Because of the number of papers, presentations ran concurrently in the auditorium and conference rooms. Usually one had a clear choice of a subject of the individual's interest, but there were times when we wished we could be in two places at once. There was also the fine exhibit of shells to be visited between times.

Naturally, most of the delegates travelled to this special meeting from various parts of the United States, from as far away as Hawaii. And in addition we had the pleasure of meeting those who came from other countries: the United Kingdom, Europe, India, North and South America were represented. Oman was represented also, in the person of Dr. Donald Bosch who was home on leave from his medical duties.

The banquet speaker was Dr. Ruth Turner, who gave a color-slide talk describing the background, the methods, and the findings of the 1979 ALVIN deep sea exploration of the Galapagos Rift, where strange species live at depths where it had been thought that no life could exist. Her presentation held everyone's complete attention. (The expedition, of which Dr. Turner was a member, was reported on in "National Geographic" for November 1979 -- "Incredible World of the Deep-sea Rifts" -- and was the subject of a television special first shown early in 1980.)

At the end of the evening AMU President Richard Houbrick passed the gavel to the incoming president, Dr. Louise Kraemer. Dr. Kraemer announced that the 1982 meeting will be held July 19-23 in New Orleans, with the hosting by Dr. Dee Dundee in the absence of a shell club in the area. Dr. Kraemer plans "a superb symposium on molluscan genetics" in addition to other attractions.

The last day of the meeting was devoted to field trips. There was a choice of land, freshwater, fossil, SCUBA or shallow water marine collecting, so every collector could enjoy his or her own specialty.

Dorothy Raeihle

SUBMARINE VOLCANO DEVELOPS SOUTHEAST OF HAWAII

An active underwater volcano has developed 18 miles southeast of the island of Hawaii, the largest of the Hawaiian chain of islands. Measuring 15 miles long and 8 miles wide, the volcano is building from an abyssal deep 3,660 meters down to a summit 980 meters deep. Dr. Alex Malahoff of NOAA reports that no unusual animal life has been found along the hydrothermal vents. (In contrast, strange creatures were found along the vents of the Galapagos Rift. -Ed.) Volcanologists and plate tectonics scientists have stated in the past that the Hawaiian chain was born over millions of years as the Pacific plate moved westward over a "hot spot" in the earth's interior, causing island building through eruptions.

SEA TECHNOLOGY 22(6) 7, June 1981

CYPRAEA FULTONI Sowerby, 1903

Robert H. Janowsky

Of all the rare and unusual species of *Cypraea* on which I have reported in previous issues, none compare with *Cypraea fultoni* for rarity or for sheer excitement. There is something about this species that brings out the "blood lust" among *Cypraea* collectors -- something that exceeds even the great rarity of the species and of specimens availability. Perhaps it is because we know so little about the shell, or perhaps it is because of its great beauty, but for whatever the reason, I'd venture a guess that this species is number one on the "most wanted list" of all collectors of *Cypraea*.

To date, no specimen of *Cypraea fultoni* has been found with the animal parts intact. In fact, to the very best of my knowledge all known specimens have been taken *ex pisce*. The fish, *Sparodon durbanensis* (Castlenau) which is commonly called "the musselcracker," is reported from several areas off South Africa but those in which specimens of *C. fultoni* have been found most often come from waters off Durban, on the east coast of South Africa. The fish is caught by commercial fishing boats from depths that often exceed 300 meters (See: "Malacophagy Among Marine Fishes," by Harry G. Lee, NYSC NOTES No. 268.7, January 1981.).

In his book, THE LIVING COWRIES, C. M. Burgess (circa 1970) reports that "probably fewer than twenty-five of these cowries have ever been recorded and probably less than half of this number are good specimens." I believe that the number of specimens reported by Burgess eleven years ago could and should be revised upwards a bit, but almost certainly fewer than fifty examples (good and bad) have been recorded. I can cite the location of fifteen specimens in the United States which are in institutions and in private collections, and know of several more specimens outside this country. But again, so rare and so desirable is this species that in the past year I have seen specimens change hands at figures well in excess of $10,000.00. One must remember, too, when dealing with that fact that almost no "new" specimens of Cypraea fultoni have been found in the past ten to twelve years, and that the laws of supply and demand operate in the shell world as well as everywhere else.

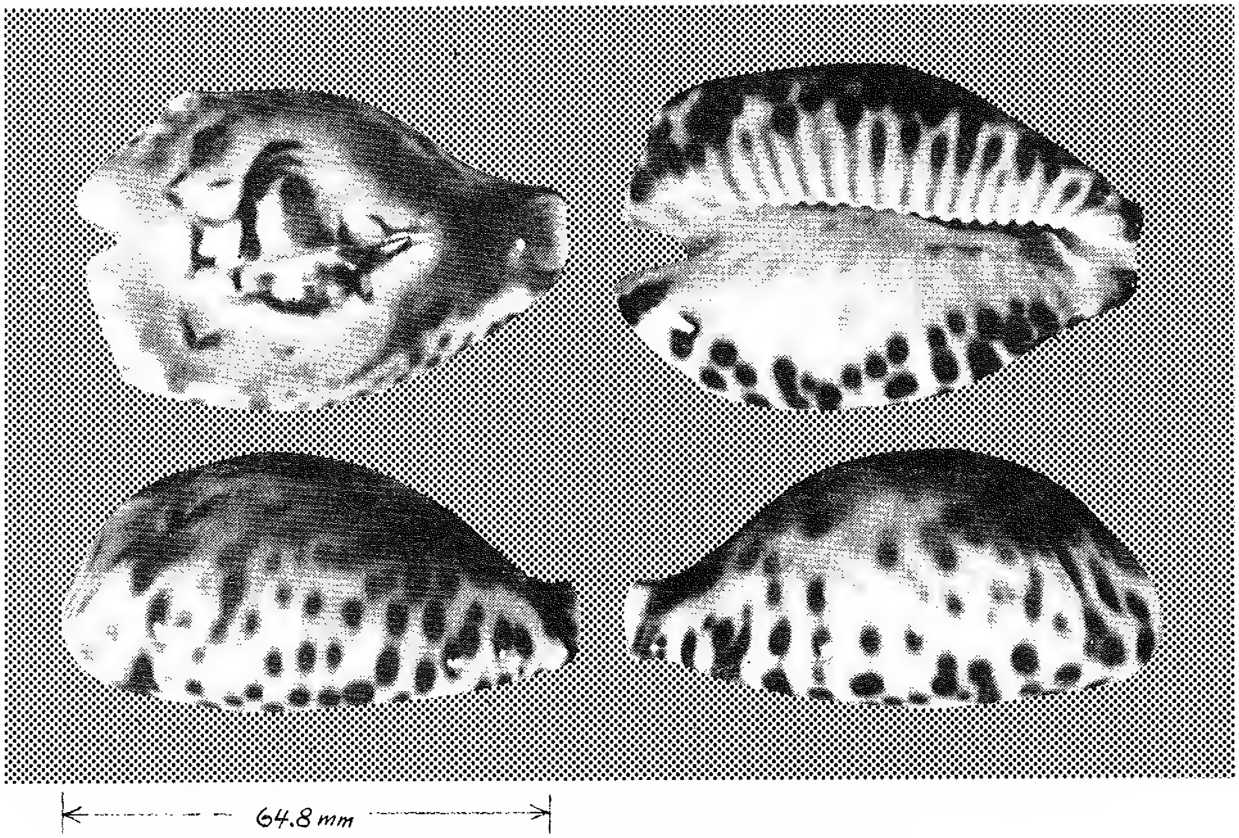
Several reasons have been put forth for the disappearance of the species from the market, but the most important one is that the fishing boats are simply not bringing in the "musselcrackers" -- and with no fish, there are no shells. From what I've been told by several reliable correspondents in and around Durban, the number of commercial fishing boats operating in the waters in which Cypraea fultoni have been found has been reduced by almost 90% in the past ten years. In addition, the operators of the fishing boats pretty well discourage the crews of the few trawlers that do go out from supplementing their incomes by slitting open fish when they are supposed to be working. This discouragement takes the form of an immediate loss of the job and seems to be pretty effective.

The specimen illustrated here measures 64.8 mm in length, 44.4 mm in width, and 31.4 mm in height. It exceeds in length by 1.3 mm the specimen in the Delaware Museum of Natural History which is cited as the record size specimen by Wagner and Abbott in their STANDARD CATALOG OF SHELLS, published in 1978 by American Malacologists, Inc. The specimen of our illustration is in the collection of J. R. H. Lightbourn of Bermuda, and was collected from a "musselcracker" taken twenty miles offshore of Durban, Natal, South Africa. The date and depth were not recorded. When looking at this specimen it is obvious that the shell could not have been in the fish for very long, since there is no apparent damage by the digestive juices of the fish to the shell. One could suppose that if and when a live specimen of Cypraea fultoni is taken, it will not differ in any significant respect from this shell.

One is impressed immediately by the shape of this specimen. It has two knoblike projections at its margins near the posterior end that give many specimens of this species the distorted deltoid appearance that we associate with Cypraea fultoni. Many specimens, though, do not have these projections, and in some that I have seen the projections are not as prominent as they are in our illustration. It has been suggested that these knobs signify maturity, but I doubt this. I would suggest, therefore, that they might possibly be a manifestation of sexual dimorphism in the species or that they represent responses to changed habitats, thus resulting in the two forms. At any rate, all this is speculative, since no live animal has been seen.

The overall color of this specimen is light tan on the top of the dorsum. The abstract design on the dorsum (the dorsal blotch) consists of irregular and unevenly deposited markings of brown/red shades. These irregular lines are outlined towards the margins by a thin blue/grey color. The color on the dorsum becomes dark tan away from the center towards the margins. The margins are broad, cream in color, and covered by numerous dark red/brown spots. These spots continue onto the base which also is cream color. The teeth are strong and thick and are light orange color on the base. There are twenty-one labial teeth which extend almost to the edge of the margin. Twelve thicker and stronger teeth are present on the columellar side. These teeth extend only slightly beyond the aperture. A rather deep fossula is present on the columella, which is white.

These photographs and my poor descriptions do little justice to this most attractive specimen. I used to complain about how little we knew about this strange and rare species. Today I consider it a miracle that, given its rarity and the odds against finding a good specimen, we know anything at all about it.



Cypraea fultoni Sowerby, 1903

L. 64.8 mm, W. 44.4 mm, H. 31.4 mm
ex pisce off Durban, South Africa.

Collection of J. R. H. Lightbourn, Bermuda

Photograph by Robert H. Janowsky

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January

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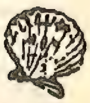

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26	27	28	29	30	31	

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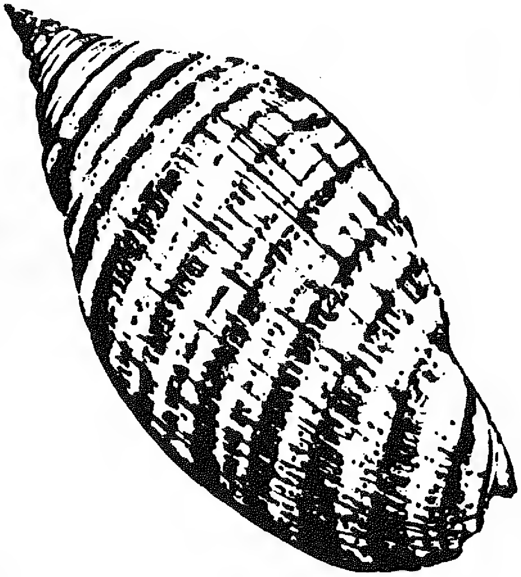

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These NOTES are distributed by mail to all members of the NEW YORK SHELL CLUB, INC. Dues: Full membership $6.50 per year, $2.00 additional for each of other members of the same family -- with one copy of NOTES per family. Corresponding membership $5.00 per year in U.S.A., $6.50 overseas. A limited number of back issues of the NOTES are available $.65 postpaid per single copy; also bulk rates. Items and articles for publications in the NOTES should be sent to the Editor. The corresponding Secretary should be notified promptly of any change of address.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 426, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, OCTOBER 11, 1981, at 2:00 pm

PROGRAM: THE NAUTILUS AND OTHER SHELL EXHIBITS
Slides by Neil M. Hepler

Don't miss these views of the most outstanding shell exhibits.

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FALL LECTURE SERIES

The American Museum of Natural History announces their fall lecture series of 17 courses or more, to start in October. Subjects include Archaeology, Asian Dance, Audubon Films, Plate Tectonics, Tibet, Wetland Botany, etc. Of particular interest to our members:

SEA SHELLS AND SHELL COLLECTING

A series of six lectures, six Thursday evenings starting October 22, 7:00-8:30 pm, fee $35.

How to collect shells and maintain a shell collection is discussed by WILLIAM OLD of the Museum's Department of Invertebrates. Slides of rare and beautiful shells, and actual specimens in the classroom, present a general survey of representative species occurring in various marine provinces world-wide. The schedule:

Oct. 22	"Rare" shells of the world.
Oct. 29	Atlantic Coast and Florida shells. Fossil shells.
Nov. 5	Gulf of Mexico and Caribbean shells.
Nov. 12	East Pacific Shells: West coasts of North and South America.
Nov. 19	Indo-Pacific marine shells: Great Barrier Reef.
Dec. 3	Cone shells of the Indo-Pacific.

Advance registration is requested by the Department of Education, American Museum of Natural History, Central Park West at 79th Street, New York, N.Y. 10024.

For further information on the courses offered in the series, telephone (212) 873-7507.

AMNH News Release.

American Shell Dealers
Association, Inc.

A group of leading U.S. dealers has formed the AMERICAN SHELL DEALERS ASSOCIATION, INC., with 21 charter members. Among the purposes: establishment of a code of ethics and minimum business standards for shell dealers; exchange of information about mutual problems. Membership is open to all U.S. shell dealers who advertise in recognized conchological publications or are registered or licensed to conduct a shell business locally. The organization already publishes an information letter for members.

Interested dealers should write to the A.S.D.A. secretary, Dorothy Janowsky, 946 Ralph Avenue, Brooklyn, New York 11236, or to A.S.D.A. president, Robert Morrison, P.O. Box 15011, Sarasota, Florida 33579.

From: A.S.D.A. News Release of August 10, 1981

PUBLICATIONS:

A COLLECTOR'S GUIDE TO SEASHELLS OF THE WORLD

by Jerome M. Eisenberg. William E. Old, consulting editor.

McGraw-Hill, 1981. 239 pp., 158 color plates include about 4,000 specimens representing 2,600 species, 145 black and white drawings. Size 8" x 10 1/2". Price $24.95 plus taxes where applicable.

Jerome Eisenberg, founder of the Collector's Cabinet galleries and editor of EARTH SCIENCE DIGEST, has years of experience in collecting and handling shells; William E. Old of the American Museum's Department of Invertebrates, a top authority on seashells, needs no introduction to our readers.

In his review published on page 9 of the March, 1981 issue of HAWAIIAN SHELL NEWS, Elmer G. Leehman writes, in part:

> This is a great reference book for every sheller, whether beginner or advanced collector. It offers a great many vivid color illustrations and excellent data on all species, habitat location, normal sizes, and a rarity rating that makes sense. When a species has a wide range of pattern or color, several variants are shown.
>
> Data are presented on the same page as the figures, greatly easing usage. Popular as well as correct scientific names are given.
>
> A few errors and dubious species names have crept into the book. ... In any event, they do not detract from the value of this thoroughly commendable work.
>
> It is amazing that Eisenberg has been able to gather together so many shells, large and small, rare and common, for photography and analysis. To the author and the consulting editor, I offer my personal "Well Done."

The publisher offers to send the book postpaid (but please add taxes where applicable). Address: McGraw-Hill Book Company, Dept. PL. 35th Floor, 1221 Avenue of the Americas, New York, New York 10020.

Copies may also be obtained from your bookshop and, of course, at The Collector's Cabinet, 153 East 57th Street, New York, N.Y. 10022.

Publications (continued):

Monographs of Marine Mollusca, Number 2:

THE FAMILY BUCCINIDAE
Part I:
THE GENERA NASSARIA,* TRAJANA AND NEOTERON

by Walter O. Cernohorsky, Curator of Mollusks
Aukland Institute and Museum, Aukland, 1., New Zealand

Published by American Malacologists, Inc., 1981. 52 pp., 35 plates of black and white photographs containing numerous figures, 7 plates of line drawings (protoconchs, operculi, radulae, distributional maps). The monograph is dated August 15, 1981. The pages are unbound but stapled and punched for 3-ring binder.

We quote from the introductory pages:

> *The name Nassaria Link should not be confused with Nassarius Duméril or its synonym, Nassa Lamarck, which belong to the family Nassaridae. (--page 1)
>
> Living species of the genus Nassaria are widely distributed throughout the tropical and temperate Indo-Pacific region ranging from about Latitude 35° N. to 35° S. ... They can be found subtidally from ... 9 meters to ... as deep as 915 meters, on a substrate of mud and sand. (--page 4)

This monograph presents a valuable study and thoughtful evaluation of 90 names proposed within the Nassaria-Trajana groups of the subfamily Photinae. With photographs and discussion, Dr. Cernohorsky convincingly reduces the number to 30 (14 living plus 16 fossil species). Of the rest, 36 names were rejected as synonyms and 24 taxa belonged to other genera or families. These 24 taxa are listed, each with explanatory remarks and synonymy. The material is presented clearly and directly; we select for mention here the particularly enlightening 35 photographs on plates 14, 15 and 16 which illustrate variations in shell and sculpture of Nassaria (Nassaria) acuminata (Reeve, 1844). Each variation (some minute) had been given, throughout the years, a different species name.

A new species, Nassaria (Nassaria) bombax is described on page 26 and compared with the larger Nassaria (Microfusus) problematica. Specimens of the new species were collected devoid of the animal from deep water off Queensland.

Most of the monograph concerns Nassaria: Nassaria (Nassaria) pp. 1-29, Nassaria (Microfusus) pp. 31-42. The new world's Trajana is treated pp. 43-48, and the extremely rare Neoteron from Nicaragua is discussed on p. 49.

This study is a service to collectors as well as professional malacologists. To obtain this number, or to subscribe to Monographs of Marine Mollusca, write to:

American Malacologists, Inc.
P.O. Box 2255
Melbourne, Florida 32901

(Editor's note: We were not informed of the price of this number of Monographs of Marine Mollusca. Number 1, "The Family Cerithiidae in the Indo-Pacific, Part I" by R. S. Houbrick may still be available. It was published in 1978, of 128 pages, priced at $17.50.)

D. Raeihle

BACK YARD COLLECTING PRODUCES NEW SPECIES

(A summary of Harry G. Lee's article in the Jacksonville Shell Club paper, the SHELL-O-GRAM, 22(7) 3 July, 1981:)

In the spring of 1975 Harry Lee found "an unusual kind of snail" on the underside of a large piece of plywood he had placed on a grassy area in his yard. The particular area, near the bank of the Ortega River, remains moist through much of the year as the water table is very near the surface of the soil.

The snail was only 2 mm in diameter, and the apricot-to-carrot color of the soft parts showed through the transparent shell. It appeared unlike any described species in Pilsbry's treatise. Harry, Leslie Hubricht and Fred Thompson agreed that although the snail appeared to belong in the genus Guppya, it was different.

Dr. Thompson became interested and did anatomical work and research at the Florida State Museum in Gainesville. Meanwhile, the colony of snails was flourishing in Harry's back yard, so plenty of material was available for thorough study of intricate and seemingly endless details.

The result? The manuscript describing a new species, Dryachloa dauca Thompson and Lee, 1980 was recently published in MALACOLOGIA, almost six years after Harry first found the "stranger" at his back yard collecting station. Since then the species has been recognized as occurring in Mobile, Alabama and New Orleans, Louisiana -- it's just no one had ever paid any notice to the tiny thing.

The holotype of the new species was placed in the Florida State Museum; paratypes in other leading institutions in the eastern United States. It is believed that this is the first newly created genus of land snail since 1948.

Harry comments: "Certainly, this simple experience indicates that one doesn't need to travel to Timbuctoo to encounter an undescribed species of mollusk. Shells are where you find them."

dr

NOTICE TO SEASHORE VISITORS

(The following notice is excerpt from an article by Pat Ziegler which appeared in the Conservation Section of the Great South Bay Audubon Society's paper, THE SANDPIPER 14(4) 7, July-August, 1981.)

It is important that we be aware of the Marine Animal Stranding Network. This program, which includes all marine mammals and sea turtles, has been implemented by the New York State Department of Environmental Conservation. The key feature is the "hotline" telephone number (516) 653-4511, for reporting whale, seal, dolphin and sea turtle beachings on Long Island and other coastal areas. Collect calls will be accepted.

Numerous beachings occur on the shores of Long Island annually. Notification of the location of a stranded animal will result in a quick response by biologists. If the animal is alive, prompt attention is necessary to minimize stress and to better insure survival. With dead animals, biological specimens, measurements and photographs will be taken to assist in determing the cause of death.

For health and safety reasons, carcasses of marine wildlife must be handled with care and disposed of properly. Whales have been known to explode as decomposition takes place, and a virus causing seal deaths may be transmitted to man by direct contact. The stranding program will minimize such risks to the public.

All species of sea turtles and marine mammals which occur in New York's coastal waters are federally protected by the Endangered Species and Marine Mammal Protection Acts. Killing, harassment or possession of animals or their parts is strictly prohibited except under permit.

In summary, please be sure to report all strandings of marine mammals and/or sea turtles, dead or alive, to the number given above: (516) 653-4511. Remember, you may call collect.

* * * * *

(Locally, the waters around Long Island host Fin, Minke, Pilot, Humpback and occasionally Right Whales as well as species of dolphins and occasional seals.

-- Marine Environmental Council of Long Island, Inc.)

OUR MARINE SANCTUARIES

Among the final official acts of outgoing President Carter was the designation of three marine sanctuaries, making the U.S. total six. Such sanctuaries are administered by the Office of Coastal Zone Management of the National Oceanic and Atmospheric Administration (NOAA). One of the new preserves is Gray's Reef, a 16 square mile area that lies 17 miles east of Sapelo Island, Georgia. These lime rock reefs provide food and protection for many kinds of fish and other marine life including endangered sea turtles and corals which are rare to the area. The second is Point Reyes-Farallon Islands National Marine Sanctuary. This 948 square mile area off the California coast northwest of San Francisco includes the waters around the Farallons out to 12 nautical miles. It contains the largest sea bird rookeries in the U.S. and shelters several kinds of seals and whales among 23 kinds of marine mammals in addition to finfish and shellfish. The third is Looe Key, a 5.32 square mile area off Big Pine Key, Florida. It contains one of the few well developed coral reefs off the continental U.S. .... The first two sanctuaries will not have oil and gas activities restricted beyond what the states control. Recreational diving will be permitted at Looe Key.

Harbor Branch Foundation, a marine research station in Indian River County, Florida, operates submersibles exclusively for scientific research. Their Johnson-Sea-Link submersibles have made many major contributions to the advancement of man's knowledge of the marine environment. Some of the projects undertaken include over two month's work on the wreck of the Civil War ironclad MONITOR, which lies in its sanctuary in 70 meters of water off the coast of North Carolina. These submersibles have also been used to conduct baseline studies in the deep reef structures of Florida's marine sanctuary at Pennekamp State Park, and in the Gulf of Mexico at the Flower Garden marine sanctuary off Galveston, Texas. Through these submersible activities many new species of marine organisms have been discovered and documented.

SEA TECHNOLOGY 22(4) 9 & 74, April 1981

CONUS CERVUS Lamarck, 1822

Robert H. Janowsky

"A freshly collected specimen of *C. cervus* would certainly be one of the great discoveries in cones. Almost all specimens of this species (at the time of writing) are in old museum collections, and the species has apparently not been rediscovered this century."

The above quote from Jerry Walls* is the type of statement that I usually make and indeed, when talking about shells, is the type of statement that angers King Neptune and makes him say, "Let's get this guy!" One can just envision that, even while the ink was wet on the above statement in Walls' manuscript, far on the other side of the world, off a remote little island in the Philippines, a mesh tangle net is being hauled to the surface from very deep water by some natives. And in this net is the very shell that deflates Walls' statement -- the first live specimen of *Conus cervus* seen in probably a hundred years.

Conus cervus is a large and very attractive species. Up to a few years ago it was known only from a few dead specimens, some badly faded. These specimens usually had the Moluccas or Amboina as the collecting area and, since even Lamarck's type specimen had no collecting data, this led to a general supposition that the species would be found in Indonesia. In the past year or so several specimens of *Conus cervus* have been netted in deep water off Balut, a small island which is part of the Sarangani Group which lies off the southern portion of Mindanao in the Philippines. The shell nets are set at a much greater depth here than in areas previously "fished." Many new and many other species apart from *Conus cervus* have come up from these waters and I expect many more will come to light in the next several months.

The illustrated specimen came from off Balut Island from a depth between 150 and 175 fathoms in May 1981. It is 104.3mm in length and 46mm at its widest point. It is the most beautiful specimen of the species that I have seen, since it has a particularly clear pattern and strong color. This specimen is in the collection of NYSC member Nathan L. Halpern of New York City.

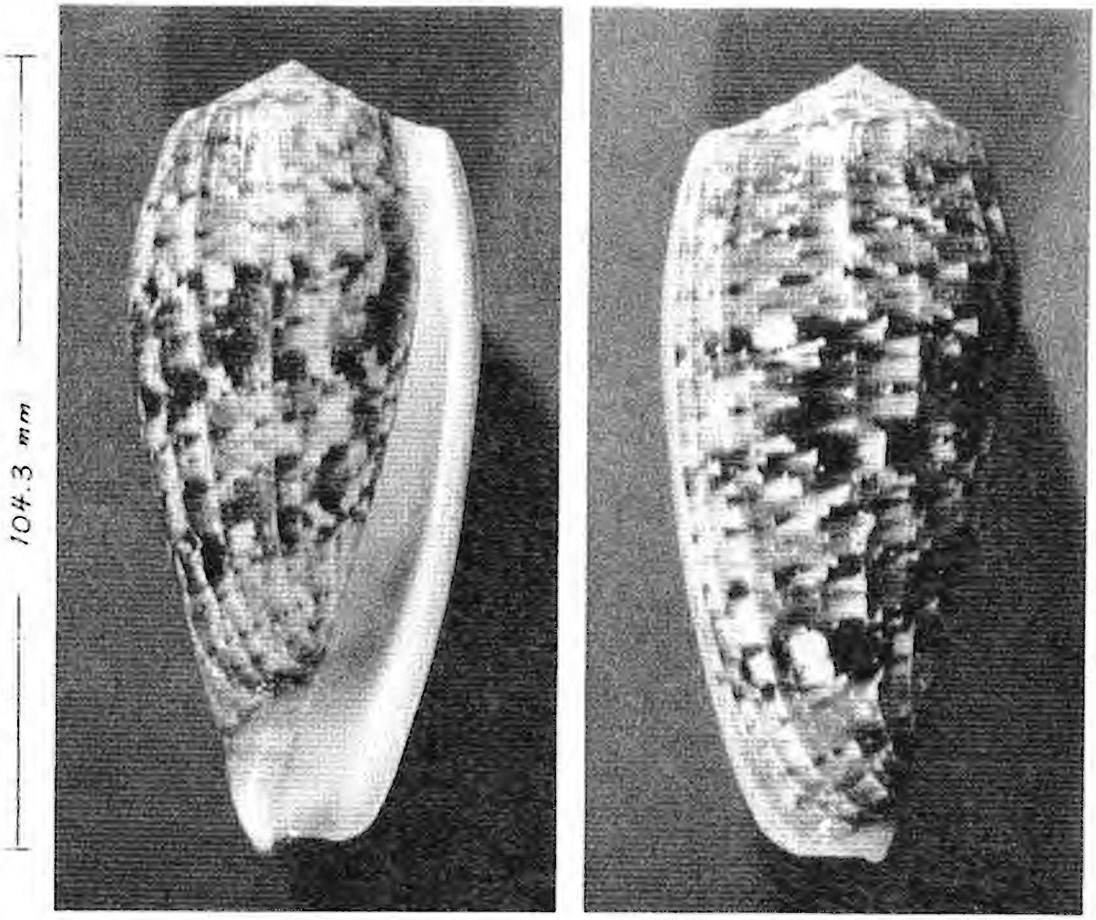
The overall color of the specimen is golden tan and it is marked by indistinct bands of a darker tan. The entire body is marked by irregularly sized white triangles, or "tents." The aperture and interior are white. On the body, parallel to the edge of the lip, is a white band several millimeters in width. This same type of band has been observed in other species of *Conus* whose configuration is similar to *Conus cervus*: *Conus bullatus* Linné, 1758, and *Conus dusaveli* H. Adams, 1872 (see my article on this species in NYSC NOTES No. 250, p.8), and *Conus vicweei* Old, 1973. There has always been quite a bit of confusion about the identity of *Conus cervus* by earlier authors. A full report of this can be found in Old's description of *Conus vicweei*** since the first specimens of *C. vicweei* collected were thought by the collector to be specimens of *C. cervus*. Old compares his new species to *C. cervus*.

* CONE SHELLS, A Synopsis of the Living Conidae, by Jerry G. Walls, page 307. T.F.H. Publications, Inc., 1979.

** A NEW SPECIES OF CONUS FROM INDONESIAN WATERS, by William E. Old, The Veliger 16(1) 58-60, 2 plates.

Reeve, 1843, observed "...that *Conus cervus* is so clearly allied to *Conus bullatus* ... that ... it may prove to be a gigantic variety of that species" and Old felt that Reeve's observation "could equally well apply to *Conus vicweei* today (1973)."

Observations made possible today by examination of live, freshly collected specimens of *Conus cervus* can leave no doubt that it is a separate species, distinct in size and pattern from any other known species of *Conus*.



Conus cervus Lamarck, 1822

Length 104.3mm, Width 46mm
Off Balut, P.I., May, 1981

Collection of Nathan L. Halpern, New York City
Photograph by Robert H. Janowsky

WHAT'S IN A NAME?

Conus cervus: Formed like a cone + cervus (a stag) = remindful of the coloring of a deer. Named by Jean Baptiste Pierre Antoine de Monet, Chevalier de Lamarck, naturalist.

" *bullatus*: Bulla = a bubble; inflated, swollen. Named by Karl von Linné, botanist.

" *vicweei*: Named for Mr. Victor Wee by William Erwood Old, conchologist.

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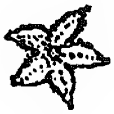

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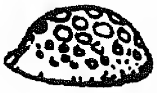

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The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 426, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, NOVEMBER 8, 1981, at 2:00 pm

PROGRAM: SHELLING IN MALAYSIA by Gary Rosenberg

DECEMBER 13: DEEP SEA RESEARCH OFF THE GALAPAGOS RIFT by Dr. Ruth Turner

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HOW TO LABEL A SHELL DISPLAY

William E. Old

In response to requests, I will make some suggestions for labeling displays for our forthcoming exhibition.

The display needs a title or theme, such as "East Coast Shells," or "Fossil Shells from Maryland and Virginia," or "One species: the Channeled Whelk." I well remember one I once saw that was entitled, "Two Days' Shelling in the Florida Keys." The couple showed the shells that they had collected on a brief shelling trip, and it was a terrific display.

Each shell (or series) should be accompanied by a label, either typed or neatly printed.

It is a matter of personal preference whether the scientific name or a common name appears first. Thus:

King's Crown
Melongena corona (Gmelin, 1791)

or

Conus jaspideus Gmelin, 1791
Jasper Cone

The scientific name is italicized or underlined. The author's name should never be set apart with a comma:

"Conus jaspideus, Gmelin" is incorrect.

Conus jaspideus Gmelin, 1791 is correct. The comma is correctly placed between the author's name and the year the description was published. While the publication date is an integral part of the name, it is for the specialist. In a popular show it may be omitted, for using it can be like opening the proverbial "can of worms." At a Florida show Alice Barlow displayed her collection of Cassids. She was polishing the glass of her cases when an old lady asked, "Have these shells been in your family for generations? Here it says '1832' and over here it reads '1791'." Alice broke up. This happens constantly, since the public doesn't know.

Parentheses are used to denote a generic name change - again, not to separate the author's name from the scientific one. For example, Linnaeus used relatively few generic names. Murex aruanus Linnaeus, 1758 or Voluta porphyria Linnaeus, 1758 may look unfamiliar to many, for both were subsequently reclassified as Syrinx aruanus (Linnaeus, 1758) and Oliva porphyria (Linnaeus, 1758) as they are now familiarly known. Note that the parentheses are used to denote a name change from the original combination - and for no other purpose.

Next, the geographical locality where the specimen was actually collected: "Cape Hatteras, North Carolina," for example. Some people like to add the entire range of a species as well, such as "Range: Maine to Florida." Finally, the collector's name and date it was found may be added: "Collected by R. T. Abbott, June 12, 1970."

So, that's really all there is to it: name and locality, plus collector if desired.

Happy Labeling!

CRAWFORD N. CATE

It is with sadness that we inform you of the death on August 9th of Crawford Neill Cate, of Rancho Santa Fe, California, a few weeks before his 76th birthday. He had been in deteriorating health for the past few years.

Crawford was formerly with the Pacific Telephone Company. After his retirement he was able to develop his interest in malacology, and became a research associate with the Los Angeles County Museum. He amassed a fabulous library and a large collection of marine shells that included uncounted rarities. His chief interest was in the cowries, and those who attended the Wisconsin meeting of the A.M.U. will remember the Cate's beautiful display.

Of his many publications perhaps his best known work was on the revision of the Ovulidae (Veliger 12, 1969; 15, 1973). His last major work was on a review of the Triviidae, published by the San Diego Society of Natural History in 1979.

Crawford and his wife Jean were members of the New York Shell Club for more than twenty years. We have many pleasant memories of their friendship.

Our deepest sympathy is extended to his wife and family.

dr

HIGHLIGHTS OF THE SEPTEMBER MEETING

President Fred Cannon announced that Bill Old, Scientific Assistant in the Museum's Department of Mollusks, will deliver a series of six lectures on shells and shell collecting, as part of the Museum's education program, starting October 22.

Bill offered some comments on the 1981 AMU meeting, held in Fort Lauderdale, Florida, and reported that the AMU has requested that the New York and Long Island shell clubs consider serving as joint hosts to the 1984 meeting.

With November approaching, and with it the shell show to be held in the Museum, Bob Janowsky provided a number of does'n'donts in labeling exhibits.

Also as preparation for the show, the meeting was addressed by Henry Schulson, of the Museum's Membership Association. He outlined the publicity the Museum will give the show in its publications Rotunda and Natural History, and the special events that the Museum will add to the show. These will include four or five films, to be screened three times each day, a Bingo-type game based on matching shell pictures, and a seascape with a lot of free space where children can draw shells. Mr. Schulson asked that we provide some shells that visitors can handle.

Milton Werner, Recording Sec'y

VAGARIES OF THE TIDES?

One of the things that keeps a sheller interested is to come across an unexpected find. Such was the case in late September when we made our way to the shoreline via a short road which dead-ended at the water. The location: South Bowers Beach, Delaware, on Delaware Bay. The beach was of coarse yellow sand. It was high tide and very windy; the waves pounded. But only a few feet from where we stopped the car there lay a single valve of the Angel Wing, Cyrtopleura costata. This was enough to make us brave the elements. We found another, and another, and another, then also single valves of Barnea truncata -- a "common" shell, but one that we rarely find.

All the shells were of single valves and none quite perfect. The Angel Wings were to about 3 1/2 inches, the Barnea to about 1 3/4 inches. They were picked out from near and between the remains of hundreds of dead horseshoe crabs (Limulus polyphemus) which appeared to have been there for quite a while.

Abbott (AMERICAN SEASHELLS, 1974) gives the range of both species as Massachusetts to Texas and Brazil, and remarks that Cyrtopleura costata is "rare in the north." (But where does "north" begin?)

There was a variety of species in this high tide drift; all were beach specimens. We found: Petricola pholadiformis, one double valve plus fragments; Mercenaria mercenaria, few; Crassostrea virginica, plenty; Macoma balthica, one; Busycon caniculatum, plenty (surprisingly no B. carica); Polinices duplicatus, sufficient; and scatterings of Crepidula fornicata and Spisula solidissima.

Two days later we managed a 15-minute stop at Kitts Hummock, a beach less than three miles north of South Bowers Beach, to see if the Cyrtopleura and Barnea were present here also. This time it was low tide, with black mud flats exposed beyond the coarse sand of the beach. There was not even a fragment of either Cyrtopleura or Barnea, but there were hundreds of freshly stranded and beach specimens of Macoma balthica -- and very little else. This finding was very like that of the fall of 1978, but on that visit there were also Busycon egg strings in numbers, both carica and canaliculatum, along with a few of their shells.

There was such a difference in the materials cast ashore at these two nearby beaches that we can only ponder the reason.

Dorothy Raeihle

MY HOLIDAY ON KANGAROO ISLAND, SOUTH AUSTRALIA

Vilma Wicks
6 Overport Rd., Frankston 3199,
Victoria, Australia

Kangaroo Island is quite large, approximately 145 kilometers long by 48 wide. It is situated off the coast of South Australia, a buffer island to the Gulf of St. Vincent. Its eastern end is nearest to the mainland which lies 13 kilometers away across Backstairs Passage. The island was discovered in 1802 by Matthew Flinders who mapped the northern coast and named it Kangaroo Island because of the large numbers of kangaroos there. It enabled the crew to replenish their food supply.

In 1803, American sealers on the Brig 'Union' arrived in South Aus-Tralia and proceeded south to Kangaroo Island, where they settled at a sheltered estuary. Over a number of months they sawed timber from Callistris pine trees near Pelican Bay Lagoon. Using this timber, they built a 35 tonne schooner, called it 'Independence,' then after completion sailed away. This was probably the first shipbuilding episode in Australia. Later the estuary, which is an inlet from the sea, was called American River, and is so today.

I enjoyed my six-day stay at American River on a tour, staying at Linnets Motel. The first day after arrival I was up early and on the beach. Not a soul in sight, just me and the birds -- pelicans black swans, and the ever-present sea gulls. The beach is rather narrow, but has loads of small dead shells lining the high tide marks. There was sea grass at the water's edge, but no sign of live shells and no tracks in the wet sand. I contented myself by gathering a few beachworn shells.

On another day, as the tide was further out, I found, under rocks, many of the black nerites -- very young Melanerita melanotragus -- and left them in peace. There was black mud beneath the surface of the sand; this made it difficult for much searching.

Of the shells I brought home, the following provided a small variety: Soletellina donacioides, Haminoea tenera, Katelysia scalarina, Plebidonax deltoides, Equichlamys bifrons, Chlamys asperrimus, Cardium racketti, and a small number of small Turritella and the like. There are good beaches to visit, but for a shell collector it would be best to have one's own car there or a hired car from the island, as the tourist sightseeing by coach does not enable one to spend the necessary time at will at any one area.

The fishing there has a high reputation and one day we were taken out fishing from their launch, but luck was not with us. Two fish were caught, then the sea became turbulent and we had to move to another spot; still no luck. However, I was happy to gather from the bucket a collection of Plebidonax deltoides, which was the bait much used for fishing. It is very plentiful in South Australia as well as Kangaroo Island, New South Wales, and the southwest of Victoria coast. The bivalve comes in a variety of purple and pink hues down to off-white. Back at the motel, I cleaned out the animal from my lot and left the pairs spread out to dry. That was the main gain of my trip. I am sending a few pairs as a sample to my friend Dottie Jensen.

Of great interest to contemporary shell gatherers must be the results of early seekers, especially those who collected from deep waters where, so often, wonderful finds are made. Such was the late Sir Joseph Verco. Born in 1851 in South Australia, in 1876 he obtained a degree of M.D. in London. On returning to South Australia, he became a leading man in his profession. Some years later, after a serious illness, he began in his convalescence a gathering of shells in earnest, reawakening a boyhood interest. That was how it started, resulting in success with dredging activities over a period of time, operating in the Backstairs Passage which lies between the mainland and Kangaroo Island, then going further afield into the Great Australian Bight. Thus much dredging was in depths of 10 to 35 fathoms and beyond and, when weather permitted, dredging was conducted to 100 and more fathoms in the Southern Ocean, where great swells occur. During many excursions he had the good company of men of science, such as W. A. Zietz, Dr. Torr, Mr. Bednall and others.

He kept a diary and from that resulted his book, "Combing the Southern Seas." It was edited and prefaced by Mr. Bernard Cotton (1905-1966) who became curator of molluscs of the South Australian Museum in Adelaide about 1934, following the death in 1933 of Verco who had trained him in conchology. The book was published in 1935. It contains a color plate of a group of rare shells taken from the Great Australian Bight. I will list them now:

> Umbilia armeniaca Verco; Ericusa fulgetrum Sowerby plus five varieties named by Verco: lunisligata, connectens, trincta, unicincta and punctisligata; Godfreyena torri Verco, Cottonia dannevigi Verco; Ericusa papillosa var. kenyoniana Brazier and its dwarf form.

Additional finds in the Bight were Cypraea thersites, decipiens, friendii, etc.

A great amount of material was classified and is housed in the South Australian Museum in Adelaide. The shells were first described by Professor R. Tate in the 'Transactions of the Royal Society of South Australia' 1891 and onwards, later by Sir Joseph from 1895-1918. In all, 31 papers were reviewed, 571 species, and 175 new ones, then further working out by Mr. Bernard Cotton and Mr. K. F. Godfrey.

Species dredged from 10 fathoms:

> Three scallops - Pecten bifrons, Pecten fumata and Chlamys asperrimus; a large spindle, Fusus australis; the triton, Cymatium rubicundum; Lima angulata; Diplodonta globularis, Gastrochoena lamellosa, Chama ruderalis, Cytherea disjecta, Phasianella ventricosa and others.

Dredged while anchored at American River:

> Plenty of Bulla australis and Cylincha arachis, Calliostoma nobile of good size, two living Cassis fimbriata, two living Hemipleurotoma quoyi, two living Scapha verconis and so on.

From Backstairs Passage and Yakanilla Bay:

> Lima multicostata, Glycymeris radians, Chlamys asperrimus, a Laterius aurantiacus (the largest yet taken, about 3 1/2 to 4" long, a dead specimen) very rare in South Australia, a new coral red lamp shell Magasella vercoi, a small Murex tatei, a large Mitra glaba. Scapha (Notovoluta) kreuslerae (still a rare shell), Lyria mitraformis, more volutes Ericusa ful-

getrum Sowerby and its variety lunisligata, Voluta undulata, and that is but a few.

A more recent collector enthusiast, namely Alan Osterstock, a well known identity of Kangaroo Island and a researcher of many natural subjects, has written a number of books relating to his love of the island. Following is a selection from his book, "Sea Shells of Kangaroo Island:"

> Spondylus tenellus Reeve, 1856; Mimachlamys asperrimus Lamarck, 1819 in red, orange, yellow, purple and brown; Fusinus australis Quoy, 1833; Cardita crassicosta Lamarck, 1819 in a variety of colors; Macroclanculus undatus from low tide mark to 5 fathoms; Xenogalea nivea Brazier, 1872. A variety of cones, cowries, volutes and other things. The giant Turbo (Dinassovica) jourdani Kiener, 1839 has been known to come ashore live in relatively large numbers at one spot. I presume this to be a recent occurrence, as hitherto it was said to only be found in dead state.

In conclusion: The shells found around Kangaroo Island may occur along the gulf and ocean beaches of South Australia where collecting is more fruitful than are the beaches of Victoria, which at times receive heavy pounding.

Back home with memories of a very nice holiday involving beaches and shells, good weather and good company.

CLAMS DIE

From afar, the water appeared littered with paperwads or small chunks broken from the white polystyrene foam used to buoy floating docks. A closer look showed the debris to be thousands of clam meats, floating lifeless and shell-less. Such a startling spectacle, occurring simultaneously on Watts Bar, Chickamauga, Guntersville, Wheeler, and Wilson Reservoirs during late June and early July, understandably led to many questions and some concern.

The only species involved was the Asiatic clam (Corbicula manilensis), an unwelcome import from the Orient whose plague-like spread throughout the Tennessee Valley during the last two decades has been punctuated by a number of similar mass mortalities. As the clams begin to decompose, the buildup of gases pops open their shells, and their inflated bodies rise to the surface as "floaters."

Biologists have all but ruled out the possibility of such causes as pollution, pesticides, chemical spills, or sudden changes in temperature and dissolved oxygen. Although they have not yet identified the specific pathogen, they believe the die-offs are caused by a disease that kills only this species while leaving other species unaffected. Various bacteria, protozoa, fungi, trematodes, and parasitic copepods have been identified or implicated in similar disease syndromes that cause mass mortalities among various other bivalves, mainly seaside and marine species of oysters and mussels.

Corbicula were first discovered in this country in 1938 in the Columbia River in the State of Washington. How they got there may never be known, but Corbicula are commonly eaten in many Asian countries and may have been carried into this country as food by immigrants.

Like many other exotic plants and animals, Corbicula rapidly became a widespread pest. Within 10 years Corbicula were clogging irrigation ditches in California, often building shell deposits several feet deep within a single year. Within another 10 years they had spread to lakes and rivers in many other western States. Wherever they spread, they soon made themselves unwelcome by clogging public water supply intakes and industrial cooling systems and making dredged sand and gravel unsuitable for concrete (live clams struggling to reach the surface before the concrete sets leave voids that reduce its strength).

The species was first positively identified in the Tennessee Valley in 1959 in samples from Kentucky Reservoir. Earlier records indicate that it was probably Corbicula that in 1957 clogged the pumps and piping at TVA's Shawnee Steam Plant on the Ohio River near Paducah, Kentucky. By 1962 Corbicula had moved upstream through all the mainstream Tennessee River impoundments and to many tributary streams. They are now common throughout much of the rest of the eastern United States.

Corbicula's prolific reproduction and adaptability to a wide range of habitats and water quality conditions soon led to their dominance almost everywhere they spread. The inability of valuable Tennessee River mussels to compete successfully with this intruder undoubtedly contributed to the decline or disappearance of many species during the 1960's.

Massive summertime die-offs of Corbicula have occurred several times since its introduction. The first such die-offs were noted simultaneously in 1961 in the upper reaches of Kentucky Reservoir and in the Cumberland River. Similar die-offs occurred in Hales Bar (now Nickajack) Reservoir in 1962; in the Ohio River near Cincinnati in 1963 and near Louisville in 1966; below Kentucky Dam on the Tennessee River and below Barkley Dam on the Cumberland River in 1977; and in Barkley Lake in 1979.

Although susceptible to such natural die-offs, Corbicula are unaffected by most pesticides. Of those few chemical toxicants known to be effective, none except chlorine is registered for use as a molluscicide in municipal and industrial service-water systems. Because Corbicula can "clam up" for a long time until "slug" doses of chlorine have dissipated to ineffective levels, chlorination must be continuous for three weeks or more at a time. And not even chlorine can be used to control excessive populations of Corbicula in lakes and streams, because concentrations high enough to be effective would exceed water quality standards and might harm desirable but more highly sensitive organisms in the natural environment.

If proposed studies identify the specific pathogen that has been killing only Corbicula, biologists may eventually be able to develop a safe and effective method for controlling this troublesome and expensive pest.

From: IMPACT 4 (5): 10, September 1981
(TVA-Natural Resources and the Environment)

Contributed by W. K. Emerson

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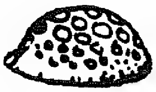

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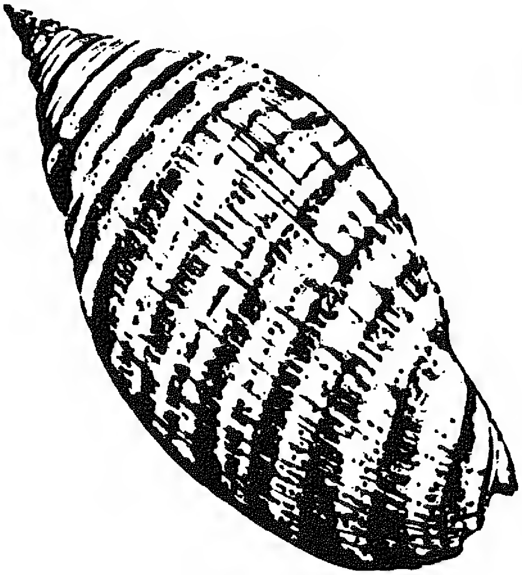

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The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 426, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, DECEMBER 13, 1981, at 2:00 pm

* PROGRAM: DEEP SEA RESEARCH OFF THE GALAPAGOS RIFT
by Dr. Ruth D. Turner, Museum of Comparative Zoology, Harvard University

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* PROGRAM NOTE

Dr. Turner was a member of the expedition which in 1979 explored the depths of the Galapagos Rift using the deep-sea submersible "Alvin." This exploration was the subject of a National Geographic TV special and the article "Strange World Without Sun" in their November 1979 issue. Dr. Turner's report and observations take us behind the scenes. Bill Old and I saw her excellent and absorbing illustrated presentation at the AMU meeting last July, and we say, "Don't miss this meeting!"

dr

MORRIS KARL JACOBSON
SCHOLARSHIP FOR MOLLUSCAN STUDIES

The Astronaut Trail Shell Club of Brevard County, Florida, again offers a grant of $500.00 to a student who is registered for a Masters or PhD degree in an accredited Florida college or university and is engaged in a research project, or preparing a thesis, dealing primarily with the natural history or systematics of mollusks.

Applicants should submit a brief educational resumé, an outline of the research project, the use to which the money will be put, and a letter of recommendation from his or her chief advisor. Applications should be mailed to the Chairman of Scholarship Awards, Astronaut Trail Shell Club, P.O. Box EG-515, Melbourne, Florida 32935 before January 1, 1982. Funds from the grant are to be used to defray expenses directly connected with the student's research project. Previous applicants, other than former winners, may re-apply for this grant. Members of the Astronaut Trail Shell Club or their immediate family are not eligible for this scholarship.

This scholarship is given in memory of Morris Karl Jacobson, an Honorary Life Member of the Astronaut Trail Shell Club who made many scientific contributions to malacology, and was author of several popular books on shells and sea life.

ASTRONAUT TRAIL SHELL CLUB

HIGHLIGHTS OF THE OCTOBER MEETING

President Fred Cannon announced that Mansfield and Celia Fuldner had, during the previous week, celebrated their 60th wedding anniversary. The happy news drew a round of applause. Fred also announced that the Long Island Shell Club will soon hold its annual auction.

The shells in the display case were from the collection of the day's speaker, Joel Greene. He had chosen them for their beauty and, in some instances, rarity.

Fred noted that it will require many more exhibitors to make the coming Shell Weekend properly impressive. He read the notice of the show that appeared in the current issue of the Museum publication "Rotunda," and the notice that will appear in the November issue. He also noted that he and the Janowskys had driven to the Delaware Museum of Natural History to borrow, for the show, several first-rate exhibits that the Delaware Museum had acquired from their creator, Neil Hepler. He then showed a number of slide photos of these displays.

Speaker Joel Greene's subject was "Shelling the Philippines." He first showed and described a series of slide photos of the scenery, cities, villages and people encountered along the route of the tours that he conducts regularly. The locales included Cebu, Zamboanga and Manila. He then showed pictures of some of the most interesting specimens he has brought back from these areas. Many depicted variations in color and form, and he included several freaks. The final series showed a number of live-collected gastropods and bivalves that had coral and/or other shells attached to them.

Milton Werner, Recording Sec'y

ACHATINA IN THE NEWS

In the New York Daily News of Sunday, October 18 (page 5 of the Travel Section) there appeared the following item. No source was given for the information:

> ### Accustomed to the pace
>
> There is usually never a dull moment in a Custom inspector's day. And every so often an inspector's sixth sense tells him something is amiss. Recently, Customs officers at Los Angeles International Airport caught a foreign exchange student trying to smuggle 37 giant African snails into the U.S. These voracious creatures, said a spokesman, have no natural enemies in this country and could do great damage to U.S. crops if imported and left to breed unchecked. The inspector confiscated the creepy crawlers.

The incident was described in another report (source unnamed) as involving "3 dozen giant African Snails, each a foot long." We've been trying to imagine how such could fit into a suitcase.

(MOLLUSCANA is the title used by Dr. W. W. Sutow for various articles he contributes to the TEXAS CONCHOLOGIST, the publication of the Houston Conchological Society. The following article was published in the January 1981 issue of TEXAS CONCHOLOGIST, XVII(2).)

MOLLUSCANA

W. W. Sutow

Akibumi Teramachi was one of the best known amateur conchologists in Japan. He lived in Kyoto and for decades he was the central source for the rare (and for that matter, the common) seashells from Japan. He initially took up shell collecting as a recreational hobby for health reasons. Over time he virtually controlled the distribution of the deep-sea rarities brought up by the fishermen who dragged the bottom of the deep waters off the coast of Tosa. This kind gentleman was a friend to collectors abroad and many old-timers have had the immense pleasure of exchanging seashell specimens with him.

I last saw Mr. Teramachi alive on November 17, 1965. Dr. Tokubei Kuroda was the guide as we walked up the slope along narrow winding streets of Kyoto to the Teramachi home. A brief description of that visit has been recorded in Molluscana in the February-March 1966 issue of TEXAS CONCHOLOGIST (Vol. II, No. 7). A part of the concluding paragraph may bear repeating:

"The room in which we sat served as the den, sitting room and workshop for Mr. Teramachi. Books were stacked on the mat -- Japanese books in one stack, non-Japanese books in another. There were boxes and boxes of seashells. The whole house seemed to be crammed full of these specimens -- almost entirely of Japanese origin." I have a prized specimen of *Teramachia tibiaformis* Kuroda as a memento of that visit.

As mentioned a couple of times in the pages of TEXAS CONCHOLOGIST during the past two years, the Teramachi Collection was transferred to the Toba Museum where the major items are on display. Mr. Teramachi passed away in 1979.

* * *

Toba is off the main rail lines -- but is readily reached. Those planning to see Japan might well consider flying to Osaka instead of Tokyo. Nonstop flights are scheduled directly from Honolulu to Osaka. One can avoid potential problems in Tokyo where the airport is situated so far distant from the city.

Osaka is the second largest metropolis in Japan. Kyoto (the one place most visitors to Japan will want to see) is only 16 minutes by train from Osaka (compared to almost 3 hours from Tokyo). Toba can be readily reached by electric train from Osaka, Nagoya or Kyoto.

Toba is situated within the famous Ise-shima National Park. The park contains the Ise Jingu Shrines, the most venerated Shinto shrines in Japan. Also famous here are the "Wedded Rocks." The city of Toba (30,000 population) is a popular resort center with all sorts of facilities for the convenience of the visitors. The Toba Aquarium, itself a central attraction, houses the Teramachi Collection of Seashells.

Toba Harbor also contains another famous landmark -- the Pearl Island. This is where Kokichi Mikimoto first succeeded in producing cultured pearls. The Mikimoto Pearl Museum is located in Toba.

The seascape in this area is truly breathtaking. Anyone who plans to include Kyoto in the itinerary should think of visiting Toba (particularly if one is a conchologist and has an extra day). The Teramachi collection is probably the world's finest accumulation of marine mollusks of Japan -- and, best of all, the shells are on display.

* * *

Another shell museum (in Japan) is located near the tip of the remote Nomo Peninsula. Nomo is a fishing village and a growing resort town. Nomo is about a 40-minute drive from Nagasaki and is the westernmost point of Kyushu and thus of the four main Japanese Islands. The Marineland there houses the museum. Nagasaki University has its marine biology laboratories nearby.

Nagasaki is situated on the island of Kyushu, the most southwestern of the four main islands of Japan. Kyushu itself is scenically attractive with a number of appealing tourist spots ranging from the active volcano Mt. Aso (said to be the world's largest volcano), Kagoshima (known as the Naples of the Orient) to Beppu (with its thousands of hot springs). Kyushu is considered to be the cradle of Japanese civilization. It was from this island that the Divine Wind ("kamikaze") helped to thwart the invasion of Japan by Kublai Khan's hordes in the 13th century.

Then there is Nagasaki. Long before the atomic bomb etched Nagasaki in the memory of mankind, the city itself was already well-known. It was through this seaport that foreign culture flowed into Japan. It is Japan's leading shipbuilding city and the center of Catholicism. Though relatively remote, air transportation has made the city readily accessible to visitors.

The usual entry onto the island of Kyushu is through the city of Fukuoka, its largest city. Fukuoka is 1 hour from Osaka and 1 1/2 hours from Tokyo by air. The bullet train (which traverses an 18.7 km tunnel from the main island of Honshu) takes 6 hours 52 minutes from Tokyo and 3 hours 44 minutes from Osaka. Nagasaki can be reached by limited express train from Fukuoka in 2 hours 40 minutes.

I first visited Nagasaki in 1948 with the Atomic Bomb Casualty Commission. We commandeered four Piper Cubs and maneuvered our precarious way among mountain tops from Fukuoka (Itazuke AFB) to an abandoned baseball field near the hypocenter of the atomic explosion. Shortly thereafter I had made several weekend trips to Nomo on a jeep. This was no picnic. We had to maneuver our way along the seashore on a slippery and badly damaged roadway. Parts of the road were out of the water only at low tide. At that time there was only a small fishing village at Nomo with the fishermen living in houses supported on stilts over the water. The people discarded their refuse over the side of the platform into the water. I spent hours rummaging through the debris under the houses and came away literally loaded with all sorts of Japanese shells.

When I revisited Nomo a few years back, the road from Nagasaki had become a two-lane highway. The fishing village had been rebuilt. And at that time, Dr. Kosuge was the curator at the museum.

The museum was financed and built by the villagers and the local fishermen's association. Completed in 1973, the museum has on display more than 8,000 species of mollusks from all over the world.

However, the Japanese species (marine and land) predominate and the local and regional rarities are featured. At the museum, the visitor is greeted in the lobby by the world's heaviest Tridacna gigas, a monster from Borneo that weighed 400 kg when collected.

While the museum does not contain quantities of startlingly new or unusual shells, the displays are arranged with typical Japanese ingenuity. The techniques of displaying shells (even by hanging them from the ceiling) are worth studying.

Thus, a trip to Point Nomo (Nomozaki) may well be a final touch to what could be a delightful few days on the island of Kyushu. One must pass through one of the most historical and cosmopolitan cities in Japan -- Nagasaki. This is the city immortalized in Puccini's "Madame Butterfly." Glover Mansion, a tourist spot in the city, has been publicized as the setting for the story told in the opera.

If Dr. Kosuge is still the curator, one can anticipate an informative chat (in English) with a professional malacologist. If the tides are right, there are a number of spots for live shell collecting in several different types of habitats. (And, as an aside, it could be mentioned that a chain of tropical islands stretch southward from here including Amami and Okinawa, the latter a mere one hour's flight from Fukuoka.)

LIMAX MAXIMUS IN COMPETITION WITH FELIS DOMESTICA FOR FOOD!

Noel Jackson
74 Thomas St., Craghead, Stanley, Co. Durham, England

Much to the concern of our two cats and my wife, we recently found a large Limax maximus lapping milk from the cats' bowl. I was politely told to keep my slugs outside, and duly removed the offending animal. Two evenings later, a large L. maximus was again observed helping itself to the milk. The animal appeared to be similar to the slug evicted on the previous occasion. By chance, Brian Eversham, a fellow Conchological Society member was present, and after photographs had been taken of the slug in action (and again it had been put outside), conversation turned to whether the animal might have learned to exploit the cats' milk as a food source.

The obvious thing to do was to mark the slug in some distinctive way so that it could be identified if it returned. As it was a Limax, it was decided that small nicks could be cut into the edge of the mantle without damaging the animal to any great extent. Since then we have been visited twice by our lactophile Limax, and the clipped mantle has conclusively shown that it is the same animal that has returned.

This observation seems to imply some degree of learning, as it is hard to see what could be attracting the animal into the house other than the milk. We certainly do not find slugs in any other part of the house.

I would be interested to hear from other members who have noted a predilection for milk amongst slugs, and more to the point, to hear of other examples of possible learning.

My experiments will of necessity be practical. There will be little peace until I have proved to my wife that I have made the house slug-proof!

CONCHOLOGISTS' NEWSLETTER No. 76, March 1981

REVIEWS:

AMERICAN INDIAN TOOLS AND ORNAMENTS
How to Make Implements and Jewelry with Bone and Shell

by Evelyn Wolfson. David McKay Company, Inc., New York 1981. Juvenile literature. 104 pages, profusely illustrated. Price $8.95.

Mrs. Wolfson lists the major tribes of North America, locates their areas, and gives brief descriptions of each section's resources and the uses to which they were put by the Indians. Detailed instructions are given throughout, whether you would fashion a bracelet from a bivalve, make beads from Olivella, Dentalium, etc., or make knives, fish hooks and hafted tools from the sturdier shells and bones. Or would you create a breastplate from radius and ulna bones of chicken wings? Full directions are here, from preparing the bones retrieved from the dinner table to assembling bones, beads, and leather strips. The tedious methods of the Indians are described, but modern tools (files, punches, drills, etc.) are specified in the "How to" chapters.

There are some malacological errors in paragraphs introducing shell material, but Mrs. Wolfson's work concerns the culture of the American Indian and does not pretend to be a "shell book."

Dorothy Raeihle

THE AUDUBON SOCIETY FIELD GUIDE TO NORTH AMERICAN SHELLS

by Harald A. Rehder, with photographs by James Carmichael. A. A. Knopf, New York, 1981. 894 pp. Price $11.95.

This is a compact handbook intended to be carried in the pocket and used for identification in the field. According to the information on the jacket, "671 sea shells are covered in full detail, with notes on 200 more species." All shells are illustrated in full color, three species per page. Many of them, particularly the small species, are greatly enlarged, depicting the shells in exquisite detail. A rather novel feature is that the specimens were photographed on sand (or rocks), imparting a naturalistic "beach" effect. For the most part the pictures depict cleaned shells, though there is a section featuring color photos of living marine mollusks. Photos are captioned with common names, size, and reference to the text page.

A unique feature, adding to the book's usefulness as a field guide, is the arrangement of the illustrations of the shells by shape (and color). A system of thumb tabs with a silhouette has been devised to aid in locating a given shell. Furthermore, since this is a field guide, the scope is limited to the littoral and shallow-water species. Deeper water species that are never found intertidally are not covered. The text is phylogenetically arranged. Scientific names are cited (without authors or dates),together with individual species descriptions, habitat notes, range, and remarks.

William E. Old, AMNH

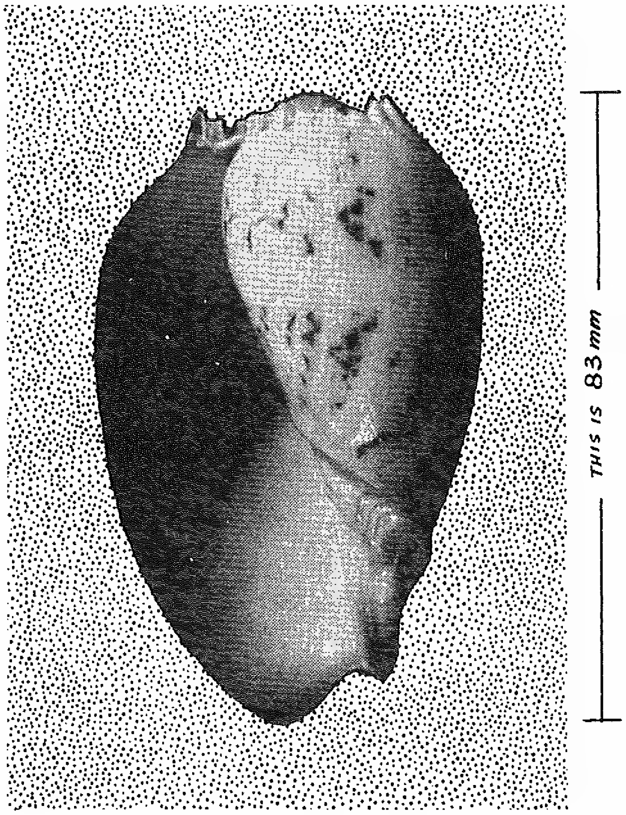
Monographs of Marine Mollusca, Number 2:

THE FAMILY BUCCINIDAE PART I: THE GENERA NASSARIA, TRAJANA AND NEOTERON, was reviewed in NYSC NOTES No. 275, p.3. Price: $7.50 postpaid from American Malacologists, Box 2255, Melbourne, Florida 32901.

A RARE SINISTRAL SPECIMEN OF MELO BRODERIPII (Griffith & Pidgeon, 1834)

Robert H. Janowsky

I was extremely delighted to have been able to examine the very rare, quite possibly unique sinistral or "left-handed" specimen of *Melo broderipii* whose phograph accompanies this article. The specimen measures 83.3 millimeters in length and is 55.5 millimeters wide at its thickest part. It was collected by some native fishermen at a depth of five to ten fathoms from a muddy/sandy substrate off Sacol Island (off the southern portion of Mindanao), Philippines, in February 1981.



MELO BRODERIPII
(Griffith & Pidgeon, 1834)
Sinistral specimen

L. 83.3mm, W. 55.5mm
Off Sacol Island, Philippines,
5 - 10 fathoms, February 1981.

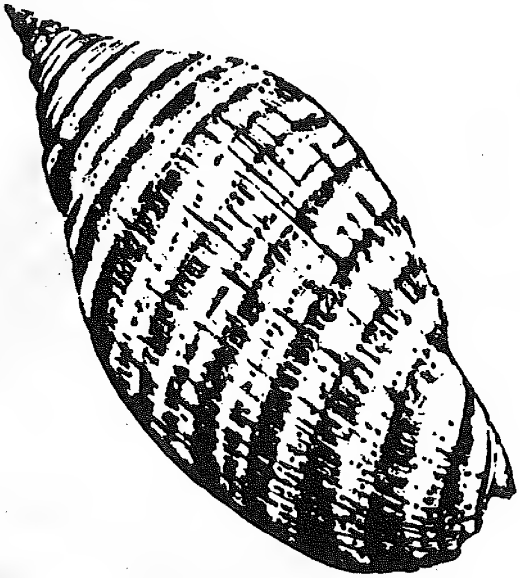
Collection of C. Duprey
Photo by Robert Janowsky

At first glance this specimen does not appear to be typical of *Melo broderipii*, since we are accustomed to seeing this species as a large shell (200-300mm) of more or less uniform color -- olive/brown encircled by broad lighter bands. This specimen is sub-adult and is tan in color with an irregular pattern of reddish brown streaks. In "The Living Volutes" the authors, Weaver and Dupont, say of this species: "juvenile specimens show interrupted, longitudinal, chestnut streaks." Remarkably, the specimen is in perfect condition.

I have never before heard of a sinistral specimen of *Melo broderipii* and, in fact, this is the only sinistral specimen of any species belonging to the genus *Melo* of which I am aware. I am aware of sinistral specimens of three other species in the family Volutidae: *Alcithoe arabica johnstoni* Powell, 1942 - one specimen; *Cymbiola imperialis* (Lightfoot, 1786) - two, possibly three specimens; *Scaphella junonia* (Lamarck, 1804) - two specimens, and *Cymbiola vespertilio* (Linné, 1758) - numerous specimens. I would be most interested if any of my readers could help add to or up-date the above list.

The illustrated specimen of *Melo broderipii* is in the collection of Mrs. C. Duprey of Nashville, Tenn.

* * * WE WISH YOU HAPPY HOLIDAYS * * *



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The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 426, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, JANUARY 10, 1982, at 2:00 pm

PROGRAM: SHELLING IN BONAIRE, NETHERLANDS ANTILLES
by Richard Goldberg (with color slides)

SHOWCASE DISPLAY by Fred Cannon

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CONGRATULATIONS! WE DID IT!!!

After months of planning, working, and even "pulling a few teeth," our first New York City Shell Show took place at the American Museum of Natural History on November 21st and 22nd. Twenty-seven members and friends appeared early Saturday morning to enter a rather large, barren Education Hall. Each toted boxes and bags filled with prized shells. After hours of arranging and rearranging, each exhibit looked perfect. We were ready for the onslaught.

At twelve noon the doors swung open to start two of the most interesting days I've ever spent working with shells. The curious and the interested (750 in all) came through those doors to look, touch, learn, and to ask lots of questions, but mainly they came to see what the incredible world of conchology has to offer in the way of beauty and design and just plain fun.

The exhibits were informative and as varied as the interests of the exhibitors, whose ages ranged from eight to eighty. There were exhibits of One Family, Micro Shells, Land Snails, Self Collected, How to Clean Shells, Shellfish as Food (with delicious recipes to take home and try), exhibits on names, patterns, shapes, sizes, colors, and several exhibits even invited our visitors to "Please Touch." There were several beautiful exhibits of Shellcraft including beautiful embroideries of shells. We even had demonstrations of crafts.

Great squeals of delight could be heard from the children as each one won a shell prize playing the Shell Bingo game.

Our great friend Russ Jensen agreed to give up his weekend to drive up with two extraordinary exhibits, on the life histories of Janthina and Nautilus. They are the work of Neil Hepler and are now owned by the Delaware Museum of Natural History. Neil also brought two miniatures: A tiny Shell Shop complete with shell books, swim fins and collecting gear all to scale, and a collector's "Shell Room" complete with lighted display cabinets filled with tiny shells.

Archie Jones sent us twenty-three live Liguus fasciatus from the stock that has been breeding in his Miami back yard. I planted a small terrarium to make a suitable home for the beautifully colored creatures. On each of the mornings I gave them a warm shower and a rubdown so they'd be clean and shiny for their new audience. They performed admirably (did everything but sing and dance) much to everyone's delight. They certainly were stars of the weekend.

The film festival Henry Schulson put together was a delight. Besides being very informative it was light and amusing, a great way to end a tour of the show.

At the end of the show on Sunday night everyone was feeling happy and contented in spite of sore feet. The general feeling was "Job Well Done!" "Next year . . " could be heard over and over again throughout the room -- not just from our club members, but from the museum staff as well.

So --- to all of you who gave so much of your time, effort and talents, I thank you a thousand times over. To each of you, and your friends who came to observe and give us your support, our heartfelt thanks. We needed it!! For those who didn't or couldn't join us -- you were greatly missed - - - - but - - - - there is NEXT YEAR!!!

Fred Cannon

HIGHLIGHTS OF THE NOVEMBER MEETING

President Fred Cannon read from a letter from Ethelyn Woodlock addressed to Tillie Weingartner, that accompanied her dues. In it, she said that she very much misses the Club, and that since moving to Florida she has entered exhibits in St. Petersburg shell shows that have won firsts and seconds.

Commenting on the November 21-22 Shell Weekend, Fred reported that twenty-six members have indicated that they will enter exhibits. He also drew attention to a supply of 8 1/2 x 11" flyers for members to take and display where they might attract visitors to the show. The flyers are copies of a larger poster designed by Al Scarpetti for display in the Museum.

The speaker was Gary Rosenberg who, it was pointed out, lives in southern New Jersey but attends meetings regularly. His slide talk described a recent collecting trip to Pinang Island, near the west coast of Malaysia, where he visited the family of a college friend. The molluscan fauna, he said, is much like that of the Bay of Bengal. He collected extensively, using a variety of methods. Searching the large heaps of shells dumped along the shore by fishermen turned up a number of species, notably Muricidae, and many either alive or freshly dead. He also combed tide pools, screened sand for miniatures, picked limpets from rocks, dredged from a boat, collected from a coral reef, dug in tidal flats, and snorkeled in shallow water. He reported leaving his mask and flippers on a tidal flat temporarily and losing them permanently to an incoming tide. Gary commented with obvious familiarity on the species and varieties that he showed in close-up.

Milton Werner, Recording Sec'y

CATE SHELL COLLECTION AT AMNH

William E. Old,
American Museum

The collection formed by Jean and Crawford Cate, of Rancho Santa Fe, California, was a well-known one and consisted primarily of Cypraea, Mitridae, Muricidae, and Hawaiian shells. These were the groups that they studied and the collection served as a basis for the papers they published in The Veliger and other journals from 1960 to 1979. Holotypes of their new taxa were deposited in museums, but they retained a number of paratypes and numerous 'hypotypes.' Several years ago the Cates sold the bulk of their collection to Tidepool Galleries, in Malibu, California. The American Museum acquired the bulk of the Mitra collection, together with some other material, by purchase. Upon processing we catalogued some 1800 lots of specimens.

Last year Jean Cate inquired if we would like the remainder of their shells, those that they had retained. Through the generosity of the Cates this material was recently sent to New York, and totaled some 7,000 specimens. It was found to contain the specimens actually photographed and figured in Crawford's papers on Cypraea, as well as a large number of 'hypotypes' -- specimens otherwise cited in his regional papers, such as the largest and smallest individuals of a species of Cypraea available from a given locality. We acquired the second known specimen of Cypraea marginata Gaskoin, 1848. For over a hundred years this species was known only from the (then unique) holotype preserved in the British Museum. In a 1961 paper, Crawford reported and figured the second known specimen.

The Cypraea and other shells received have been incorporated into the museum's reference collection. We are now in the process of cataloguing his extensive collection of 'Allied Cowries.' Since receipt of the donation, word reached us of the passing of C. N. Cate (see NYSC Notes no. 276). However, his material that is deposited here will be available for future studies of these groups.

RUTH A. CRAINE 1892 - 1981

We are sorry to have lost a long-time friend and associate, Ruth Craine (née Bush), widow of Zur W. Craine. She was born in Northport, Long Island, and her first collecting was of treasures and curios she found on our north shore beaches. During her long life her interest in the field did not diminish; even though she had collected in the Pacific Islands, Panama, and the Caribbean, she would be among the most animated members of a local field trip.

Ruth joined the New York Shell Club in 1959, while resident in Norwich, New York, and made frequent trips to attend NYSC meetings and our annual auctions. She also attended AMU meetings regularly. She amassed a collection of shells and literature which was dis--persed over recent years.

In 1974 she entered a retirement home in Southern Pines, North Carolina. She died September 14th after many months of declining health. She will be remembered with affection.

Dorothy Raeihle
Freda Knauer

FRANK LYMAN 1895 - 1981

Frank Lyman, who died October 11th, was known to shell collectors everywhere. He was an active collector, and his early writings reflect an era when Florida was more sparsely settled.

For the following details we consulted "American Malacologists" (p. 351): Frank Lyman became a dealer in shells in 1932, and later published "Shell Notes" (1942-1951). His contributions to "The Nautilus," 1936 - 1938, were articles on marine mollusks of Florida: "My discovery and observation of the living Xenophora in Florida waters," 49,4; "'It was a great day,'" 50,1; "Conus mus Hwass, in Lake Worth, Florida," 50,3; "Food of Cassis madagascariensis," 51,1; Hydatina physis (L.) in Lake Worth, Florida," 52,1; 52,2. His first collection was destroyed by fire in 1963; as of 1973 it had been rebuilt to 3,500 species.

He was a lifelong resident of Florida, born in Lantana, near Lake Worth, in later years a resident of Fernandina Beach.

We learn from the Jacksonville Shell Club's "Shell-O-Gram" that "his son, Jack B. Lyman, will continue the seashell business which his father established. His address is 11505 Vera Drive, Jacksonville, Florida 32218."

dr

YOUR FUTURE IN THE SEA,
New York City Symposium

The date and place are set for the 1982 symposium, "Your Future in the Sea." It will be Saturday, March 20. The location has been changed, moved back to Hunter College in Manhattan's east side. The American Museum of Natural History, which will still co-sponsor the event, cannot provide enough seats in its now-being-renovated auditorium. Symposium details will be mailed in February.

From: COASTAL REPORTER, American Littoral Soc.,
Sandy Hook, Highlands, New Jersey 07732

(Editor's note: The following report of the A.M.U. field trip to Key Largo last July is excerpt from Constance Boone's article entitled "A-LIGGING I DID GO" in "Texas Conchologist" of October 1981, Volume XVIII, Number 1, pages 5-13.)

"A-LIGGING I DID GO"

Constance E. Boone

Every year one of the nicest parts of the annual session of the American Malacological Union is the day for field trips, and this year was no exception. I finally had the opportunity to go into the field with Archie Jones, long known as a foremost authority on the subspecies and forms of the Florida tree snail, Liguus fasciatus (Müller, 1774).

In 1977 Archie conducted a tree snail trip for AMU to the Everglades. This year Archie took us to hammocks in the Florida Keys -- Key Largo, to be exact.

We were instructed to meet at 7:30 a.m. on Saturday, July 25, in the lobby of the Galt Ocean Mile Hotel at Fort Lauderdale, Florida, where the AMU was meeting. We were divided up and went by station wagons to Key Largo, stopping at Florida City to pick up our field trip leaders, Fran H. Thorpe, Erwin C. Winte and Jones.

The morning was overcast and it began to rain -- perfect for ligging.

It was recommended that we wear trousers and long-sleeved shirts (not too light weight), sneakers or old shoes or boots (no thongs), heavy socks, cotton work gloves, and an old hat or head scarf. In 1977 I remembered some AMU members went to the Everglades in shorts and came home scratched, bruised and miserable!

We were asked to bring insect repellant (Cutters lotion or cream were recommended), a CLOTH bag for _Liguus_, something to drink like soft drinks and fruit juices, lunch, snail poles if we had them. The lunch and drinks were provided by AMU; most of the lig poles were provided by the leaders and local snail collectors.

After arriving at the first hammock we had a short informative talk by Archie, who also passed out long trousers, shirts, etc., if he saw someone attempting to begin this lig trip without them. We were told that the hammock, back of Garden Cove, had large subtropical hardwoods, that the hammock floor beneath the high canopy would be cool and open, and that we would find _L. castaneozonatus_ and _L. roseatus_.

We were guaranteed to find shells!

I grabbed a lig pole which consisted of several sections of aluminum tubing that would fit into each other to accommodate reaching higher areas of trees. The topmost section of the pole had a "lig cup" attached, a metal cup attached to the end of the pole so that you could push it up under an unsuspecting _Liguus_ and urge it off the tree and into the cup. It was my first time to use one, and I thought it was fun, except for trying to attach the sections among the bushes and trees. You could hear the _Liguus_ drop with a dull click into the cup -- what a thrill. Sometimes when you tried to put down the pole among the trees and try to drop the _Liguus_ out of the cup to put it into your bag you found the lig had attached itself firmly to the bottom of the cup and had to be shaken soundly to remove it. But by using the poles and cups you avoided knocking down a beautiful snail and having it smash on the ground below. The shells aren't that strong.

Everywhere inside the hammocks we struggled between trees that were connected by beautiful huge spider webs with spiders. You simply couldn't avoid getting them all over you that rainy morning, and I got used to having them cling wetly to my face. The hammock floors were soft and springy with matting of tree limbs and debris. We were in Florida at a time of really serious drought so we weren't in any waters in the areas we went. These hammocks (small island-like places often surrounded by water) were relatively dry this year. It is my understanding that the Everglades pose entirely different kinds of collecting, some done from air boats and some done by trudging through saw grass and water to get to different hammocks, besides running into alligators and snakes.

Mosquitoes were absolutely ferocious! I knew why Archie said we needed shirts "not too lightweight." Despite the Cutters spray I put all over me I suffered numerous bites around my eyes and nose. I am often allergic to some medicines, etc., and I had been afraid to put the spray on eyelids or nose bridge because I would be perspiring and was afraid the spray would get in my eyes. (The next day you couldn't tell my nose bridge from eyelid areas!)

It was a strange experience to enter such a world with such high trees that kept you from really orienting location. With little sun for a while, I almost got lost in the first hammock and finally did emerge on the opposite side and had to walk a long road around to where the gang was gathering for lunch.

The second and third locations were easier since so many of the snails were out travelling on the trees near the road, some on low bushes that made the picking easier, even without lig poles.

On arriving home, I decided to do a bit of research on the snails to report to you and to add to my knowledge. I knew that our club library had the classic reference, Land Mollusca of North America by Henry A. Pilsbry. Volume II contains the monograph on Liguus and this is what I checked out.

The Genus Liguus was named by Montfort in 1810 in the Conchyliologie Systématique 2:422, for L. virgineus (L.). The name is from "ligo," meaning to bind up or bandage, referring to the color bands. It is pronounced Líg-u-us, an anglicized pronunciation of common name in general use instead of as in Latin (Lig-oó-us).

The distribution is from Haiti, Cuba, with the Isle of Pines, southern Florida and the Keys. It is arboreal, living on the trunks and branches of trees; in Florida it inhabits hardwood groves known as hammocks, scattered island-like in pine woods, sawgrass or swamp.

These snails like damp weather and are active in rainy weather and at night. During the hot sun or in dry weather they seal themselves to tree barks, hide in knotholes or crevices and in other protected places. They feed mainly on minute fungi growing on trees. They scrape off the fungi and algaes and true lig hunters look for trails on trees where ligs have fed to find the snails. They do not eat chlorophyll-bearing leaves and are found on a great variety of trees, but prefer smoothish bark trees such as the mastic, Lysiloma, Jamaica dogwood and others, as well as dead trees of these varieties.

The origin of Florida Liguus was studied many years, but today it is becoming harder to determine where a specific colony came from. It is thought that most of the strains came to Florida by floating on logs or debris and by being blown over by storms and hurricanes from Cuba. Through the years, scientists studied the snails and often transplanted them to other areas, even to their own backyards so they could study them. The purity of subspecies became muddled. Often it was the pleasure of students of ligs to try to interbreed different populations to come up with new color combinations.

The first information on Floridian Liguus was Thomas Say's description of Achatina solida in 1825. In 1844 Dr. Binney sent a collector, John Bartlett, to Florida, and in 1852 published figures of some finds.

The snails can live a long time, as I found out. I put mine in cloth sacks, but since I went to several locations and wanted to keep the material separate by hammocks, I ran out of cloth sacks and used a plastic sack, a fatal mistake. I had snails all over my hotel room the next day and even when I got home found some crawling around the bedroom because they had chewed through the cardboard box. They can eat through any kind of plastic or paper goods.

After I got home I began to wonder if we had been privileged to go to these hammocks to collect Liguus. For a number of years most of us have understood you couldn't collect the Florida tree snails because they were fast disappearing. When I went to the Keys I was always told to collect only a very few if I found them. I published "snail season" rules, recently announced in Florida for one preserve, in our Texas Conchologist. I thought I had better find out what to tell you, so I wrote to Archie Jones.

First of all, I was surprised to learn from Archie that the Florida Liguus is not on the threatened or endangered species list of this country.

There is no restriction on collecting Liguus in Florida EXCEPT (1) in the Everglades National Park where all collecting is prohibited; (2) in the Big Cypress National Preserve where collecting is restricted to the period of October 1st through March 31st, with a bag limit; (3) in local, state and federal parks, preserves, etc., where the taking of anything is prohibited. These areas are all properly marked.

Our collecting activities on Key Largo were not, therefore, by special permission. However, I would like to add that I still feel privileged to gather a few of these beautiful snails, and I hope visitors to the areas will take small numbers so that there will be adult snails left for other collectors to see someday.

While you are about the business of finding Liguus, you might just encounter the pretty little arboreal snail, Drymaeus (there are several species in Florida), on some of the bushes and trees. Dr. William J. Clench, director emeritus of Harvard Museum of Zoology, was busy picking these off from under leaves on the bushes beside the road. This is a tropical and subtropical snail about one inch in length that originally came from South America. The colors are not as gaudy as Liguus but it is pretty.

And probably you ought to know about Orthalicus snails also because you might collect one in the Keys and think it is a Liguus. It is more ovate and not as wildly colored, but it is still a pretty tropical snail that moved up from South America. All are epiphytic and the range in Florida is near the sea. O. floridensis, a three-banded form, is most common. It usually has a cream-colored or white background, with axial dark streaks and with banding. We have found it on the trees in the Keys along with ligs in other years.

(The article in Texas Conchologist included photographs of live Liguus fasciatus roseatus, L. f. lineolatus, and Orthalicus floridensis; a photograph of the author with field trip leader Archie Jones, and a map of the area.)

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DISPLAY CASE: "COCKLES OF MY HEART" by Fred Cannon

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A CORRECTION

In last month's NOTES (No. 278), the next to last line on page one, please substitute the name Russ for Neil. It was Russ Jensen who brought to New York from the Delaware Museum the exquisite miniature of shell shop and shell room for display in our shell show at the American Museum last November.

1982 SHELL SHOW DATES

(from AMU Newsletter)

January 15-17	Southwest Florida Conchologist Society,* at the Fort Myers Exhibition Hall. *P.O. Box 876, Fort Myers, Florida 33902.
16-17	Astronaut Trail Shell Club of Brevard P.O. Box 515 EG, Melbourne, Florida 32935.
28-31	Greater Miami Shell Club,* Lobby of "Planet Ocean" on Virginia Key. Hours: 10:00 am - 6:00 pm. *570 Sabal Palm Dr., Key Biscayne, Florida 33149.
29-31	Sarasota Shell Club,* at the Sarasota Exhibition Hall, Highway 41. *231 Freeport Drive, Sarasota, Florida 33583.
February 5-7	Broward Shell Club,* at the Pompano Beach Recreation Center. *P.O. Box 10146, Pompano Beach, Florida 33061
19-20	Naples Shell Club P.O. Box 1991, Naples, Florida 33940

April 1-4	Greater St. Louis Shell Club,* at the Jewish Community Center, 11001 Schuetz Road, Creve Coeur, St. Louis County, Missouri. *6602 Bartmer Ave., St. Louis, Missouri 63130.
17-18	Pacific Northwest Shell Club,* at the Pacific Science Center, Seattle. * c/o Mrs. Miriam L. Cooke, 13330 3rd NE, Seattle, Washington 98125.
April 30, May 1-2	Long Island Shell Club,* at the Freeport Recreation Center, Merrick Road west of Meadowbrook Parkway, Freeport, Long Island, New York. * c/o Martin Lerner, 64 Thompson Ave., Oceanside, New York 11572.
July 30 - August 1	Jacksonville Shell Club c/o 3895 DuPont Circle, Jacksonville, Florida 32205.

(Additional dates will be published here as received.)

HIGHLIGHTS OF THE DECEMBER MEETING

President Fred Cannon opened a summing up of the November 21-22 Shell Weekend by saying, "I'm smiling and Tillie is frowning," meaning that the show was successful, but a bit expensive. He said that total attendance was 750, and reported that the Museum was pleased with the way the event had gone. He then read letters of commendation that had been received from Dr. William K. Emerson and Henry Schulson. Fred thanked all the members who had worked for the success of the show and those who had exhibited in it. It was pointed out from the floor that Fred had worked longer and harder than anyone else, and that the event had been his inspiration.

The speaker was Dr. Ruth Turner of the Museum of Comparative Zoology at Harvard. She described a scientific expedition that employed the deep submersible "Alvin" to investigate the sea life near hot-water vents in the ocean bottom, at 2,500 meters, near the Galapagos Islands. She first showed slides, starting with photos of "Alvin," its mother ship "Lulu," and escort motor-sailer "Gillis." In showing pictures of some of the electronic equipment used, she noted that a major need for it was in relocating the vents, which had previously been discovered by geologists. When a profile of the bottom indicated that they were close, a camera was towed along the bottom until its photos, developed quickly on board, showed the white clams, *Clyptogena magnifica*, that live very close to the vents. She noted that these vents, characterized by molten rock close to the surface, are part of a chain of rifts that extends northward and includes Mt. St. Helens, the recently active volcano in the State of Washington.

Dr. Turner also showed photos of the shrimps, crabs, holothurians, huge worms, octopus, mussels, clams and three species of patellid gastropods that inhabit the warm waters near the vents. She noted that the upwelling sulphur and mineral-laden water comes to the surface at 350° C. but cools very quickly as it mixes with the very cold sea water and thus produces a temperate area ranging from 10° to 20° C. Her own experiment consisted of putting stacks of plates on the bottom as collectors of bacteria.

The slides were followed by a twenty-minute film that showed the handling of the "Alvin" in preparing for and returning from a dive, and of the bottom life in action.

Milton Werner, Recording Sec'y.

(Many of the creatures shown in Dr. Turner's presentation are pictured in the NATIONAL GEOGRAPHIC of November, 1979, pages 680-705. The name for the "Huge blood-red worms protruding from forests of white plasticlike tubes" (page 681) is Vestimentifera. --Ed.)

INFORMATION REQUESTED FOR CHITTENANGO OVATE AMBER SNAIL

The New York State Department of Environmental Conservation's Endangered Species Unit recently agreed with the U.S. Fish and Wildlife Service to prepare a recovery plan for the Chittenango ovate amber snail (Succinea ovalis chittenangoensis Pilsbry, 1908), a federally threatened, state endangered species. At present, the recovery team is gathering information on the species in order to outline steps necessary for the snail's conservation. If anyone has any information on the biology or status of this species, or has any input which would facilitate preparation of a recovery plan, please contact: Patricia Riexinger, Endangered Species Unit, Wildlife Resources Center, Delmar, New York 12054, (518) 457-7484.

From: AMU NEWSLETTER 12 (2) Fall 1981.

(See also: NYSC NOTES No. 226, p. 5.)

STERKIANA

The reactivation of this excellent publication was announced in NYSC NOTES No. 274. Number 71 of this journal is now at hand. It is dated January, 1981, is of 51 pages, and the contents are as follows:

Mussel Fauna of the Powell River, Tennessee and Virginia, by Sally D. Dennis.

Past, Present, and Future Status of the Mollusca of the Upper Tombigbee River, by Henry van der Schalie.

Some Malacological Journal Notes and Correspondence of E. S. Morse, by Ralph W. Dexter

A Non-Obligate Association between the Red Alga, Boldia, and Pleurocerid Snails, by R. Vincent Howard & Bruce Parker.

Mollusks in the Alabama River Drainage, Past and Present, by Henry van der Schalie.

A Survey of the Mussels (Unionidae) of the Upper Tennessee River, by W. Jeffrey Pardue.

Number 72 is to be mailed in the spring of 1982. Individual subscription (minimum 2 numbers) $8.00 yr., institutional $12.00 yr. to STERKIANA, Box 402, Shawsville, Virginia 24162. Editor: John M. Bates. Secretary/Treasurer: Sally D. Dennis.

PERVERSITY AMONG VOLUTES

Harry G. Lee

Bob Janowsky recently presented what was probably the rarest specimen in his interesting series of marine gastropod shell portraits [NYSC NOTES 277.7, A Rare Sinistral Specimen of *Melo broderipii* (Griffith & Pidgeon, 1834).] As far as I can tell, this was the first report of a sinistral *Melo broderipii* although I have seen two other specimens (securely ensconced in the Dan & Guerrero collections) in Manila about a year ago. Since an invitation was issued to augment Bob's list of four volute species known to occur in the abnormally sinistral condition, I should like to communicate my findings.

It appears that there has never been a normally sinistral volute, living *or* extinct (Vermeij, 1975). Nonetheless, at least eighteen species have been found with left-handed shells. Except for the Bat Volute, *Cymbiola vespertilio* (Linne, 1758), these occurrences are extremely rare - on the order of one in 100,000. Thus about half the recorded species are known to occur sinistrally by virtue of single specimens. While most authorities recognize the volutes' cousins, the marginellids, as producing the greatest number of abnormally sinistral shells, a quick analysis indicates that sinistrality occurs *on a species* basis more often in the volutes (Volutidae) than the Marginellidae. Two popular guides of the same vintage, *The Living Volutes* (Weaver & Dupont) and *Standard Catalog of Shells* (Wagner & Abbott) list 204 recent volutes and 580 recent marginellids respectively. My investigation has uncovered 18 recent volute species and about 32 marginellid species occurring in the sinistral condition. That makes a frequency of 0.088 for the volutes and 0.055 for the margin shells! Only the melongenids can claim a higher frequency. There follows a tabulation of fourteen volute species we may add to Bob's four species.

Recent (Abnormally) Sinistral Volutidae

Species	Reference (Repository)
1. *Cymbium cymbium* (Linné, 1758)	Anon. (1969)* (P. Oliver Coll.)
2. *Cymbium marmoratum* (Link, 1807)	Anon. (1974) (C. Vraitis Coll.)
3. *Melo melo* (Lightfoot, 1786)	Lan (1980) (T. C. Lan Coll.)
4. *Melo amphora* (Lightfoot, 1786)	Platt (1949)** (AMNH)
5. *Cymbiola cathcartiae* (Reeve, 1850)	V. Dan (pers. comm., 1980)
6. *Cymbiola flavicans* (Gmelin, 1791)	Abbottsmith (1969-73)
7. *Cymbiola nobilis* (Lightfoot, 1786)	Dautzenberg (1914)
8. *Cymbiola nivosa* (Lamarck, 1804)	Abbottsmith (1969-73)
9. *Cymbiola magnifica* (Gebauer, 1802)	Abbottsmith (pers. comm., 1976)
10. *Cymbiola complexa* (Iredale, 1924)	Anon. (1964) (G. Jarrett Coll.)
11. *Volutoconus grossi* (Iredale, 1927)	Anon. (1976) (B. Beutel Coll.)
12. *Amoria grayi* (Ludbrook, 1953)	Anon. (1973) (G. Rayner Coll.)
13. *Amoria turneri* (Griffith & Pidgeon, 1834)	Abbottsmith (1969-73)
14. *Amoria undulata* (Lamarck, 1804)	Abbottsmith (1969-73) (H. Lee Coll.)

* better illustrated in Dance (1976)

** originally misidentified as *M. aethiopica fidē* W. E. Old, pers. comm.

References:

1. Abbottsmith, F. (1969-1973) Multiform Australian Volutes pp. 130 (privately, Sydney).
2. Anon. (1964) Volutidae Keppel Bay Tidings 3 (2):8.
3. Anon. (1969) Hawaiian Shell News 17 (2):3.
4. Anon. (1973) Hawaiian Shell News 21 (11):7.
5. Anon. (1974) La Conchiglia 6 (7-8):14.
6. Anon. (1976) Keppel Bay Tidings 15 (2):1.
7. Dance, S. P. (1976) The World's Shells 192 pp. (McGraw-Hill, New York).
8. Dautzenberg, P. (1914) Bull. de la Société Zoologique de France 39: 50-60.
9. Lan (1980) Rare Shells of Taiwan in Color 144 pp. (privately, Taipei). (Confirmed in litt., 1979).
10. Platt, R. (1949) Shells take you over world horizons National Geographic Magazine 96 (1):33-84.
11. Vermeij, G. (1975) Evolution and distribution of left-handed and planispiral coiling in snails Nature 254:419-420.

THE OTHERS

The sinistral specimens of Volutidae named by Bob Janowsky in NOTES 277.7 were of:

Melo broderipii (Griffith & Pidgeon, 1834), one specimen.
Alcithoe arabica johnstoni Powell, 1942, one specimen.
Cymbiola imperialis (Lightfoot, 1786), two, possibly three specimens.
Cymbiola vespertilio (Linné, 1758), numerous specimens.
Scaphella junonia (Lamarck, 1804), two specimens.

We remember reporting in these NOTES (No. 62, p.6) the first of the two sinistral Junonias. It was found washed ashore on the beach at Naples, Florida - empty and with a little green algae on the shell - on Thanksgiving morning, 1959. When and where was the second left-handed specimen found?

dr

"READING" OLD OYSTER SHELLS

Ancient oyster shells can reveal much about the history of early settlers, of Indians, and of the origins and evolution of the Chesapeake Bay. Zoologist Brett Kent, with funding from the Maryland Sea Grant Program, has "read" oyster shells at several 300-year-old archaeological sites in St. Mary's, the state's oldest city and its first capital. In the shells collected at St. Mary's, Kent found a clear record of early population growth and decline during the city's first century, and evidence of the early use of hand tongs in Maryland waters. Other techniques can reveal facts about the slow creation of the Chesapeake Bay. When scientists R. E. Palmer and Mel Carriker at the University of Delaware studied shells with an electron microscope, they discovered growth rings that may hold the key for discovering how oysters and estuaries change over time. "We may be able to look at the long-term effects of climate on oyster resources," explains Kent. "There may be long-term cycles for oyster size and abundance." Finding out about this history may shed light on current puzzles like the recent fluctuations in spat set and oyster harvests.

SEA GRANT TODAY 11 (4):7

MAURITIUS TODAY

Les Whatmore

(Les Whatmore is editor of Reefcomber, the paper of the Natal Shell Society, Durban, South Africa. His article, "Mauritius Today," appeared on page 3 of the July 1981 issue.)

Your editor and his wife recently spent two weeks in Mauritius. Although one can have a fantastic holiday in Mauritius and the diving is superb, for serious shell enthusiasts it is not a proposition if your main objective is shells. One is offered thousands of shells by the locals; you can see them on the beach all day long, each with a satchell offering their wares, but all at a fantastic price and most of them from other parts of the world. As examples, Cypraea aurantium is on offer freely at plus/minus R600, Cypraea guttata at R2000, Cypraea tessellata at R80 and so on. (R = the South African Rand; recent exchange rate R1.00 = plus/minus U.S. $1.20. --Ed.) Even the shells collected locally are at inflated prices which are obtainable from any other dealer in the USA and Philippines at half the price. There are also many stands on the beaches openly displaying their wares. These are all so badly sun baked that only the tourist who has no knowledge of shells shows an interest. The rare shells which one could at least see in the dealer shops a few years ago are also scarce. In 1975 I saw eight Cypraea broderipii on the island; this trip not one and the largest dealer on the island has only seen one this year. Harpa costata, Lambis violacea are also very scarce.

The best accumulation of shells on the island can be seen at "Mikado." Vic Chakowa, the owner, now has four shops, two in Port Louis and two in Curappipe and at two of them he has shell museums which are worth a visit if ever you happen to be there. He has some of the rarest shells in the world on display and his specialised collection on Mauritian shells is fantastic.

The diving on the deeper reefs is fantastic but all the reefs that can be reached by the locals and tourists using snorkels have been ruined. Coral is bashed and broken up by the ton, small fish are taken out in traps by the thousands and although there are regulations to protect the environment the local authorities ignore it and anything goes.

For a holiday Mauritius is unbeatable -- the people are all terrific, very friendly and helpful. The hotels are all fantastic, the service is of the best, the food is outstanding and there is plenty to do and places to see. But if shells are your objective, look for other pastures.

TOUGH!

Question: Can escargot be prepared from marine snails?

Answer: Yes; however, true escargot generally refers to the European land snails of the genus Helix. Because land snails are known to harbor parasites that are dangerous to humans, they must be thoroughly cooked. Marine species used in escargot recipes include moon snails and whelks; however, one should check with local health authorities before harvesting these species.

SEA SECRETS, Feb. 1981

THE PERPETUAL FOREST

W. B. Collins

Published Staples Press, 1958. Not in print. About the West African Rain Forest. The following chapter is reprinted from THE CONCHOLOGISTS' NEWSLETTER (No. 74, September 1980), publication of The Conchological Society of Great Britain and Ireland:

"One of the most curious sights to be seen, in a country where, to the naturalist, nature piles wonder on wonder, are the lorry-loads of live snails rattling their way to market. Decay follows swiftly on the heels of death in the tropics, and what is 'fresh' at dawn may be 'high' by evening, even to the African whose palate relishes strong flavours. The only practical way to guarantee freshness is either to smoke the game, or deliver it on the hoof. Where scores of collectors are at work bringing in a kerosene tinful or a basket full of snails, the logical course is to transport them alive 'en masse.' A single small boy perched on the back of the lorry acts as custodian. A snail moves slowly, but a hundred thousand of them each moving independently over an open lorry presents a problem in conservation which few of us would care to tackle. Long before they reach their destination the snails have invaded every part of the lorry; headlamps, bumpers, bonnet, tail-lamp, even the drivers all have their quota of snails intent on escaping the cooking pot. Few do.

"When the first rains have moistened the leaf litter, eggs are laid in their millions. In a few days these hatch almost simultaneously and an army of baby snails,each little bigger than a pin's head, begins its brief existence. In its youth the snail is subterranean for two reasons. To survive and to grow it must not only be hidden from the eyes of the world, but must each day devour enough soil to provide itself with sufficient lime so that its protective shell may keep pace with its rapidly growing body.

"In its first few days the young snail doubles in size each day. To achieve this it lives mainly on soil. Tropical soils are notoriously deficient in calcium, so the young snails turn cannibal. As the survivors become too big to shelter within the soil, they gradually work their way to the surface where they feed on the raw humus in the leaf litter. Then the centipedes, scorpions, spiders, the carnivorous ants and a host of hungry birds descend and decimate the army of snails. As they approach maturity their shells toughen and provide a degree of protection against the smaller birds.

"The forest peasant has long appreciated the danger which he is to the snail, and each tribe usually has its own laws limiting the gathering of edible snails, at most, to every other year."

(Submitted by Mrs. Betty M. Smith)

PLEASE NOTE

the change in the return address for our NOTES from Brooklyn to P.O. Box 482, West Hempstead, New York 11552. Bob and Dottie Janowsky, along with their regular chores and the added work of moving to a new residence, continue to take care of the printing and mailing of the NEW YORK SHELL CLUB NOTES, and we are most grateful.

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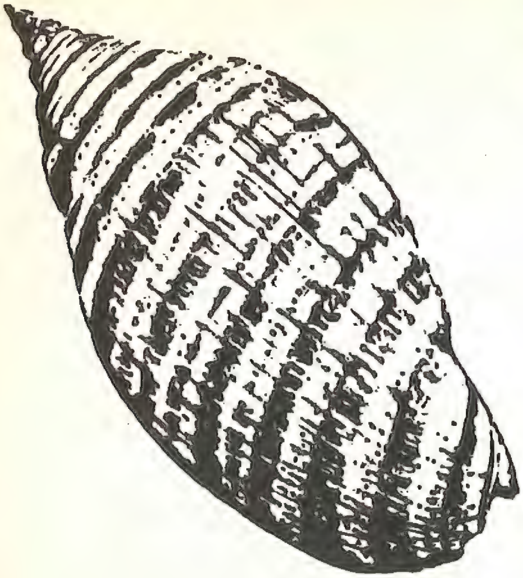

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NEW YORK
SHELL CLUB
INC.

FOUNDED JAN. 1949

March 1982

Dear Friends:

April is upon us with our auction and social. This year, more than ever, the success of our auction is very important. We are counting on you to make the day a great financial success.

Recently we've been watching our treasury go up and down like a yo-yo. In order to make our meetings as interesting as possible we have had to go to outside sources for monthly programs. This has depleted our treasury. Unfortunately the membership has not been coming forth with talks and slide presentations, and we cannot continually rely on the same three or four members all the time.

I need not tell you how the costs are increasing everywhere. We, too, are feeling the pinch. Costs of publishing and mailing our NOTES are constantly rising. We just got another increase in our postage rates.

The experiment with the shell show at the museum was a social success, but unfortunately rather a financial flop.

This brings us back to April and the one money-making event of the year. Everyone's financial and physical support is required to help us get back on our feet again.

At our January meeting it was decided to serve wine, cheese and punch before and during the auction to get you all warmed up and ready to bid. Coffee and homemade cake will be served at the close of the meeting.

Our great friend and member Richard Goldberg will show us his TV tape production entitled "Focus on Conchology."

We need every possible shell and related item for the auction. We need every one of you to come out and bid as if it were your last chance to buy shells. Please rummage through your collections and find all the hidden treasures, those items, shells, books etc. that you no longer need, and donate them to us. Let's make it the biggest success ever. If we don't, we may find ourselves at the bottom of the sea with the mollusks we all collect. If the profit for the day isn't enormous we may be in danger of disbanding.

We would like to list as many of the donations as possible in our next newsletter. Nick Katsaras is chairman of acquisitions. However, donations may also be sent or given to either the Janowskys or myself. If you have a problem with getting donations to any of us, please telephone so that something can be arranged (516: 481-0456 = Janowsky; 212: 852-1765 = Cannon).

This brings me to all of our corresponding members and friends around the world who receive these NOTES either free of charge or at our corresponding member rate. I hope you will please consider making a donation to the club whether it be of shells etc. for our auction or a financial contribution (the auction donation-at-the-door of $1.50 covers only the chair rentals). This will help to make a good start for a great, successful day.

The board of directors and officers have been considering several ideas to cut expenses. First, we would like to publish our NOTES quarterly, each issue to list the dates and programs for that quarter. It would be up to each of you to mark your calendar and remember to come to our meetings. This will take great pressure off our greatest expense, that of publishing and mailing the NOTES.

Second, we would like to set the club dues for a fiscal year, i.e. all dues to come due in September. This would enable us to know our income at the beginning of each term of office -- we could then set budgets for publishing, speakers, etc.

Friends, we are trying, and have all your interests at heart, but a club is a group activity. As of now, with over three hundred members, we are unable to count on but a few to take an active part. The club cannot function with only eight or ten members doing all the work.

You must come to meetings!

You must give us your support!

We enjoy giving you interesting meetings, full of pretty pictures, but with this pleasure goes the responsibility of every member to take an active part and give support if we are to remain the viable organization we have been all these years.

See you at our auction April 18th!

Most sincerely,

Fred Cannon

Fred Cannon, President

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 426, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, MARCH 14, 1982, at 2:00 pm

PROGRAM: THE SOLAR ECLIPSE and
SHELL COLLECTING IN SIBERIA
by Bruce Einsohn

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LISC SHELL SHOW DATE CORRECTED

On page two of NOTES No. 279 we gave the dates for the Long Island Shell Club's show as April 30, May 1 - 2. The correct dates are May 1 - 2 (April 30 is "set-up day").

HIGHLIGHTS OF THE JANUARY MEETING

Vice President Dorothy Janowsky, presiding in the absence of President Fred Cannon, introduced the subject of the April social meeting, noting that it was not too early to start planning because changes in format will be necessary to make it successful in the face of increasing costs. For one thing, admission to include dinner would have to be more than $7.50. She also noted that we have no reserve of donated shells for the auction, so it will be especially important for all members to comb their collections for material they can donate. Richard Goldberg suggested asking dealers for donations. This was seen as a possibility, but not something we could count on. Dorothy suggested that expenses could be reduced by eliminating the catered dinner, and serving wine and cheese. Al Scarpetti suggested a pot-luck dinner, and this was seen as an idea for future thought. It was noted, however, that we would probably have no way to keep hot dishes hot. To the suggestion that we buy fried chicken, Dorothy noted that we must avoid greasy foods since they could stain the wood floor of the dance studio. She then asked for a show of hands to test the reaction to wine and cheese over a catered dinner, and the former won.

Dorothy raised the question of having a speaker at the April meeting, At which Richard Goldberg volunteered to show his TV tapes of interviews with five well-known malacologists.

It was noted that Easter will fall on the second Sunday of April, and that the meeting date would have to be changed. The third Sunday, April 18th, was chosen.

Richard Goldberg showed slides, of exhibits and people, that he made at the Shell Weekend at the American Museum of Natural History. Tillie Weingartner read a note from Mart Hulswit, sent in response to her note to him on a Christmas card.

The speaker was Richard Goldberg, who presented a slide talk on his recent collecting trip to Bonaire. He noted that collecting is not allowed there, but that tour guide Kirk Anders does have permission to bring small groups to Bonaire to collect in alternate years. Richard and his fellow-tourers collected at a number of spots all around the island, and his photos showed these localities and also general scenery and shell close-ups covering over fifteen genera.

Dorothy noted that the February meeting would fall on Valentine's Day, and that everyone should "bring a shell that you love."

Milton Werner, Recording Sec'y.

JOSEPH CHARLES BEQUAERT

Dr. Joseph C. Bequaert, an Agassiz Professor of Zoology Emeritus at Harvard University, died on January 19, 1982, at the age of 95, in Amherst, Massachusetts.

He was born May 24, 1886, in Belgium and educated there, receiving his doctorate from the University of Ghent in 1908. From 1916 to 1922 he was a Research Associate at the American Museum of Natural History in New York City. In 1923 he received an appointment at Harvard University where he remained for 31 years, first at the Medical School as Assistant Professor of Tropical Medicine, and later at the Museum of Comparative Zoology as Curator of Recent Insects and Agassiz Professor of Zoology.

Dr. Bequaert published over 350 scientific papers, singly and in collaboration, in four languages, covering a variety of subjects in the fields of natural history and tropical medicine. In 1973 he published jointly with Professor Walter Miller of the University of Arizona a book, The Mollusks of the Arid Southwest. On his many expeditions abroad he was an avid collector of plants, insects, and mollusks, the bulk of these collections being deposited in the Museum of Comparative Zoology at Harvard.

He is survived by a daughter, Dr. Helen Holmes of Amherst, Massachusetts, a son, Frank C., of Lexington, Massachusetts, and three grandchildren.

PUBLICATIONS:

SHELL TRADE IN FLORIDA

An 85-page report on "The Shell Trade in Florida -- Its Status, Trade and Legislation," by Dr. R. Tucker Abbott, published by the non-profit wildlife group TRAFFIC (Trade Records Analysis of Flora and Fauna in Commerce). Price $4.50 from TRAFFIC (U.S.A.), 1601 Connecticut Avenue, N.W., Washington, D.C. 20009. Add 63c postage.

The survey indicates that about four million kilograms (1 kg. = 2.2 lbs.) of shells are imported into the United States every year. Most shells found in the 250 or so shell shops in Florida come from the Philippines and Mexico. The average shell shop stays in business fourteen years and employs two to four employees. Some 5,000 species of shells can be found in the larger shell shops.

Dr. Abbott recommends that biological investigations be made in regions of intensive commercial shell collecting.

The report also deals with Attitudes and Beliefs of Shell Dealers, Trends in the Shell Trade, Legislation now Existing, and Sources of Wholesale Shells.

AMU NEWSLETTER 12(2):6, Fall 1981.

- - - - - - - - -

THOMAS SAY'S CONCHOLOGY
1819

A facsimile copy of the third edition of Say's fundamental work from Nicholson's British Encyclopedia, Philadelphia 1819. This is the expanded version of the first (1816) and second (1818) edition. 32 pages, paperbound, 5 1/2" x 8 1/2", limited edition. Price $5.00 including postage. Foreign postage, please add $1.00. American Malacologists, Inc., P.O. Box 2255, Melbourne, Florida 32901.

The first conchological work by an American published in America, never before reproduced in full, contains 20 pages and four lithograph plates of Say's new land and freshwater species of mollusks.

The preface, by R. Tucker Abbott, tells the history of this article and gives brief biographies of the author, the editor, the publisher and the printer.

Publisher's release.

Thomas Say's article, entitled CONCHOLOGY, opens with six and a half half pages of instruction in basic conchology, including the terms used therein. Among the concluding paragraphs of these pages of descriptive text we have selected the following to quote for their general interest:

> We here introduce descriptions, illustrated by figures, of a few of the land and fresh water shells of the United States, induced particularly by the silence with which these productions of our country are regarded in the Systema Naturae. ...
>
> We think it proper to state, in addition to the above remarks, which were annexed to the descriptions in the first and second American editions of this work, that several species and three new genera are now added, which, with the exception of a small number of new species now first published, we have previously given to the world, in several detached essays, in the pages of the Journal of the Academy of Natural Sciences, in the collection of which Academy all the species are preserved.

The next fourteen pages carry descriptions of 52 species within 16 genera; the four plates following carry a total of 30 figures.

dr

Publications, continued:

NAPOLEON'S EGYPTIAN CAMPAIGN (1798-1801) AND THE SAVIGNY COLLECTION OF SHELLS

by Philippe Bouchet and Francoise Danrigal, Muséum National d'Histoire Naturelle, 55, Rue de Buffon, 75 Paris (5^{o}), France. A paper appearing in NAUTILUS 96(1): 9-24, January 25, 1982. Reprints of this article are available for U.S. $7.00 postpaid from American Malacologists, Inc., P.O. Bos 2255, Melbourne, Florida 32901.

ABSTRACT

During the Napoleanic campaign to Egypt a collection of Red Sea, Mediterranean and continental mollusks was brought together by Savigny who published upon them in 1817 as folio engravings. These served as type-figures for a number of species described by 19th century malacologists, including Audouin, Ehrenberg, Deshayes, Philippi, Hupé, Landrin, Jonas, Issel, Morlet, Vaillant, P. Fischer, Tapparone-Canefri, von Martens, Weinkauff, Monterosato, Jousseaume, H. Fischer and finally Pallary. A checklist and illustrations of 86 of these original types from the Savigny collection, now in the Paris Museum, are presented, supplemented by reproductions of the unpublished color vellums of opisthobranchs and cephalopods.

STANDARDS FOR MALACOLOGICAL COLLECTIONS

A report by Alan Solem of the Field Museum of Natural History, William K. Emerson of the American Museum of Natural History, Barry Roth of the California Academy of Sciences, and Fred G. Thompson of the Florida State Museum. This report was prepared for the Council of Systematic Malacologists and was adopted by the Council in July, 1980.

INTRODUCTION

Collections permanently housed in museums serve multiple functions for society. They document published research so that the students of tomorrow can verify the identity of organisms cited in the papers of yesteryear. They provide raw material for new research in such diverse fields as systematics, comparative anatomy, evolution, histology, and ecology. Identifications of fragmentary specimens from archaeological digs, new field collections, and environmental survey samples often can only be accomplished satisfactorily through comparisons with authoritatively identified specimens in museum collections. These collections form an invaluable record of past occurrences, enabling the study of changes in distribution or morphology and the documenting of alterations resulting from man's environmental manipulations. They are important tools in teaching and provide material for public exhibits.

For these and many other purposes, collections are an important resource to our society. They are most likely to be given permanent care in major museums, but often exist for decades in university departments or private hands. This is especially true of malacological collections. Unquestionably, the space available for collection storage is severely limited. Institutions today lack both adequate collection support staff and curatorial personnel. In order to fulfill adequately their mission to society, maximum use must be made of the space and personnel available in institutions. An important means of accomplishing this is to be certain that new materials added to major collections are consistently of high quality and to insure that only material with permanent scientific value is retained in collections.

Thus, we propose: 1) criteria for identifying material with high scientific value tnat should be added to the molluscan resource data base; 2) guidelines for winnowing from collections material that no longer has such high scientific value; and 3) general principles for storage facilities and routine care.

DATA BASE FOR MOLLUSCAN MATERIALS

The described diversity of Recent mollusks is in excess of 100,000 species. Many areas of the world have not yet been sampled adequately, so that the actual level of diversity is unknown. No single museum collection contains more than one-third of the described molluscan taxa. We therefore recognize a major exception to the following recommendations concerning the data needed to identify a specimen as a worthwhile addition to a permanent museum collection: specimens of a species or subspecies not previously represented in a collection should be added to the collection, regardless of inadequacies in their data base, until such time as better documented examples become available.

Experience over the past century has shown that it is almost impossible to have too much data associated with a specimen. Increasing sophistication of research within a field, demands from other areas of scientific endeavor, and changing demands for information from our society, have increased greatly the amount and type of data desirable to have with mollusk specimens. How much of the added data are kept in direct physical storage with the specimen and its catalogue number or stored in a computer, as opposed to being cross-referenced or annotated in a field notebook or report sheet, is a matter for individual curatorial decision.

The practice of storing specimens by lot (all material of one species collected at one place at one time) is, or should be, universal. The practice of assigning a separate number to each lot and using consecutive numbers is almost universal and should become standard.

In addition, data should be recorded in such a way that it can be associated with, or easily retrievable for, the given lot of material and all other species taken sympatrically and synchronously, as much modern research is focused on community aspects of ecology. The mechanics used to achieve this goal will be a matter of individual decision, depending upon the local availability of computer expertise and facilities and the limitations of traditional museum storage techniques. In the absence of computer technology, if all material collected at a single station (niche) is given a series of consecutive catalogue numbers, and the complete data in field notes are stored in a place convenient to the catalogues, then even an abbreviated label kept physically with the specimens will provide adequate mechanics for data retrieval.

BASIC SPECIMEN DATA -- Given demands from multiple disciplines for information associated with specimens, the following items should be viewed as the minimum data required for a specimen to have scientific value. These are:

1. Date of collection and collector.
2. Locality, specified so that an individual in the future has a reasonable chance of finding that exact spot in order to sample with assurance from the same population of individuals, if the population still exists. The nature of these data will vary with the habitat and biology of the taxa being sampled.
3. Basic ecological occurrence according to habitat requirements. For example: marine organisms -- the nature of the substrate, whether organisms are sessile or free-living, position or activity state, salinity, depth; fresh-water organisms -- type of bottom and vegetation cover, whether lake, river, stream, pond, or temporary pool; land mollusks -- the major vegetation type, any detailed plant association, and whether collected on trees, in trees, in litter, under rocks or logs, under bark, and so forth. Measurements of temperature and other environmental parameters are desirable, but not mandatory. Recording of microhabitat differences in field notes is recommended.

From: CURATOR 24/1, pp.19-21

Additional chapters of this report will be printed in future issues of these NYSC NOTES. The subjects: Method of Preservation, Acquisitions and Deaccessions, and Storage of Malacological Specimens. An appendix gives guide lines for locality data.

(Foreword: CLAMS DIE,* an article from IMPACT 4(5): 10, TVA Natural Resources and the Environment, and reprinted in NYSC NOTES 276.6,7 concerned the Asiatic clam, Corbicula, in the Tennessee Valley. Harry Lee's following observation appeared in the Jacksonville Shell Club's SHELL-O-Gram 22(11):4, November 1981.)

CORBICULA IN FLORIDA

As noted in the preceding report,* this one to two-inch relative of our native pill clams (Sphaeriids) has succeeded in colonizing a majority of North American rivers in a few short decades. I first encountered Florida specimens in the Appalachicola River in the early summer of 1967. Today almost every river in the northern half of the State has sizable populations of the Asiatic Clam (now generally referred to as Corbicula fluminea).

The burning question, of if, how and where Corbicula adversely impacts our native biota, particularly the naiades, has yet to be resolved. Certainly many of us have seen Corbicula flourish in areas where naiades have become depleted or even extirpated. Such observations do not prove a direct antagonism, however. With the knowledge that Corbicula is far more tolerant of physical and chemical changes in its environment, and given its more efficient reproductive strategy, scientists must admit that replacement of naiade populations by Corbicula may not occur unless there has been a prior disturbance in habitat. Certainly this sequence operates in some instances, but can Corbicula adversely affect naiades in otherwise undisturbed habitats? And how do we explain the situations where

Corbicula seems to coexist peacefully, as in the case at New River at Raiford, where it has been for over seven years? Perhaps we amateurs can help determine the answers to such questions.

An interesting hiatus in the distribution of Corbicula is noted in one neighborhood. The Asiatic Clam has colonized the upper St. Johns River extensively in less than seven years. None were found in any of the stations established by Dr. Henry McCullagh and me in the spring of 1974, yet it appears at present nearly ubiquitous from Lake Monroe upstream. On the other hand, Corbicula has not colonized Black Creek, where there are sizable and interesting naiade populations. One barrier to Corbicula is the fact that the waters of the St. Johns between the upstream populations and Black Creek are too saline. The ability of Corbicula to jump barriers (probably by adventitious transport) however, is renowned, and its appearance in Black Creek may be virtually inevitable. We collectors might well make note of this occurrence and trace the fate of the naiade once its uninvited dinner guest arrives.

Harry G. Lee

"Corbicula clams are considered a delicacy in the Orient." (Sinclair and Isom, 1963). Perhaps what we need is a good recipe.

ESCARGOT or CHOWDER?

The Giant African Snail, Achatina fulica, is, as you know, a destructive pest in many areas. Its use as food is apparently still confined to the Orient, as elsewhere its flavor has been generally pronounced unacceptable (See: The Giant African Snail, A Problem in Economic Malacology, by Albert R. Mead, University of Chicago Press, 1961).

In the Bulletin of Malacology, Republic of China 7:135-137, November 1980, Chen Hereng-yu reports on a preliminary discovery and propagation of albescent Achatina fulica Bowdich from Taiwan. The 4-line summary is in English, and reads:

> Two albescent Achatina fulica collected from Tsao-tun, Nan-tou County, Taiwan in September 1978 have been propagated in the natural environment to about 500 individuals. Since then, these albinos will be successfully cultured for the need of canned processors.

A photograph shows an Achatina with a normally colored shell and a very pale (white) animal extending from the aperture.

Prolific they are -- we figure that at the reported rate of reproduction, at the end of another two years their progeny would number around 60,000!

dr

HOTLINE FOR STRANDINGS

Long Islanders wishing to report marine wildlife strandings (whales, porpoises, turtles, giant squid, etc.) should call Department of Environmental Conservation's hotline at (516) 653-4511. The hotline is monitored by Samuel Sadove, director of Okeanos, a nonprofit research and education center.

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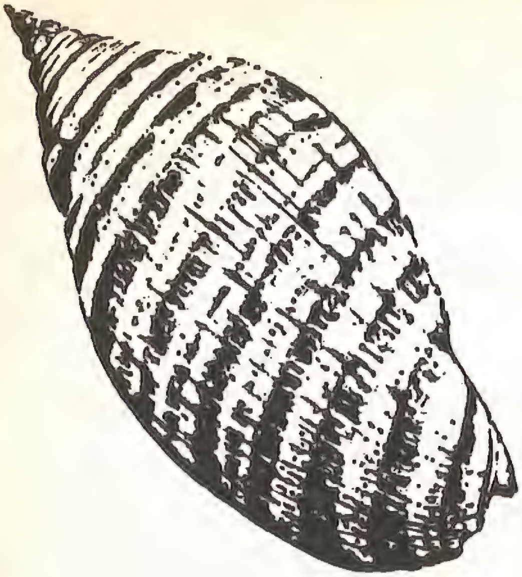

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The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in THE AMERICAN MUSEUM OF NATURAL HISTORY, Room 426, with the following exception:

NEXT MEETING: SUNDAY, APRIL 18, 1982 at 1:00 pm*

THE PLACE: BROADWAY DANCE STUDIO (Phone: AS.4-1503)
31-08 BROADWAY
ASTORIA, QUEENS, NEW YORK (Directions below)

PROGRAM: ANNUAL PARTY (Total cost $1.50 each!)

PRESENTATION: FOCUS ON CONCHOLOGY
by Richard Goldberg, at 2:00 pm

PLUS: AUCTION * BARGAIN TABLE * DOOR PRIZE(S)
RAFFLE(S) * WINE & CHEESE * PUNCH & MUNCHIES

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PARTY TALK

We look forward to a great afternoon at Dottie Jensen's BROADWAY DANCE STUDIO which she has so generously offered for our use.

DIRECTIONS: The studio is on the second floor of the building, corner of Broadway and 31st Street. From Manhattan take the B.M.T. subway, ASTORIA line to the BROADWAY stop and you are there. If you are using the I.R.T., take the FLUSHING line to Queensboro Plaza and transfer (free) to the B.M.T. ASTORIA line. From Jamaica, IND. subway to Roosevelt Avenue, free transfer to I.R.T. FLUSHING line to Queensboro Plaza, transfer again to B.M.T. ASTORIA train. BY CAR: QUEENSBORO BRIDGE to Northern Boulevard to 31st Street, left on 31st Street (under the Elevated) to Broadway. Or: TRIBORO BRIDGE to the first exit in Queens, turn right under the Elevated along 31st Street to Broadway. The building is on the southwest corner. From Long Island: GRAND CENTRAL PARKWAY to the last exit before the Triboro Bridge, go a short distance along Astoria Boulevard to 31st Street, turn left under the "El" to Broadway -- about six blocks.

*Doors will be open at one o'clock for receipt of your donations, for bargain hunters at the bargain table, for your preview of shells and other materials to be auctioned, and for a bit of relaxation with wine and cheese -- or punch and munchies. Richard Goldberg's presentation, at 2:00 pm, is of TV tapes of interviews with very well known conchologists -- and some shells.

To be raffled is a beautiful *Acteon eloiseae*. The door prizes will be a surprise. Shells to be auctioned will include:

A very large Cardita crassicostata
Conus australis
" amadis
" coccineus
" malacanus (2)
" orbignyi
" tulipa
" ustickei
" zelandicus (2)
A large Conus thalassiarchus

Cypraea argus - large
" mappa
" teuleri
" vitellus - large
Pecten nodosus
Murex chrysostoma
Tudicla spirillus
Voluta hirasei
" lapponica

These are but a few of the donations. Remember, if you have a problem in transporting your donation, please get in touch with Bob Janowsky (Phone: 516: 481-0456) or Fred Cannon (212: 852-1765) so that something can be arranged.

Coffee and homemade cakes will be served after the auction. (Here is another category for a donation!)

Come one, come all! What better afternoon could you have for a $1.50 donation-at-the-door?

HIGHLIGHTS OF THE FEBRUARY MEETING

After announcing the program for the April social, President Fred Cannon mentioned the importance of building up the treasury. By way of indicating what is possible, he referred to a file of the Minutes, noting that membership in 1950 was only 37, and that in 1955 the treasury had been described as weak.

In keeping with the date, St. Valentine's Day, Fred had filled the display case with examples of many species of Cardidae from his collection. The identifications were written on red hearts. As a "Shell I Love" he showed a Pleurotomaria hirasei that he had won as a door prize at the 1958 NYSC auction. It had been donated by Nick Katsaras. Other members who brought shells they love were Edna Christensen (Petholatus reevei), Rachel Lindsay (Haliotus), Chuck Lindsay (Cypraea tigris), Veronica Johns (Distorsio kurzi), Richard Goldberg (Gemmula graeffei), and Al Scarpetti, who displayed four Conus gubernator, or terminus, that indicated the variability of the species.

Four visitors were introduced: Eliot and Charlotte Michaelson, from Boston, and Mr. and Mrs. Edward Gardino, from Southfield, New York. Fred drew attention to a display copy of "Rare Shells of Taiwan in Color." Fred had brought a small decorative box that held slips of paper, one of them marked as a winner. The box was passed until someone pulled the winning slip and was awarded a Corculum cardissa.

The speaker was Bill Old, whose subject was "East Coast Shells." With slides and comment, he started on the Maine coast and moved the scene southward to the Florida Keys. His close-up photographs covered both well-known and little-known species. Many of the pictures included egg cases.

Milton Werner, Recording Secretary

STANDARDS FOR MALACOLOGICAL COLLECTIONS

Part II of a report by Alan Solem of the Field Museum of Natural History, William K. Emerson of the American Museum of Natural History, Barry Roth of the California Academy of Sciences, and Fred G. Thompson of the Florida State Museum. This report was prepared for the Council of Systematic Malacologists and was adopted by the Council in July, 1980.

METHOD OF PRESERVATION

Whereas in the past it was customary to extract the soft parts from the shells and store them separately, modern research frequently requires association of data from both individual shell and individual soft part. Therefore, it is recommended that live-collected materials be preserved as a single unit in fluid and not be separated in two places. Not only can sibling species be confused, but an inevitable small number of mistakes occur in sorting, so that separation of shell and soft parts frequently can lead to major problems in research. Dead specimens collected simultaneously can be given either the same or a consecutive catalogue number and stored in the dry collection for conchological study.

Relaxation of mollusks prior to fixation and preservation results in far better material for anatomical or histological studies. The simple dunking of live mollusks into alcohol or formalin results in extremely poor to unusable material. The choice of relaxants depends upon the group being preserved. Chloral hydrate, nembutal, osmium tetroxide, simple drowning in water, shredded tobacco added to water, and magnesium salts have all been used. Land mollusks should be fixated in 95% alcohol after relaxation. Following fixation in alcohol, the alcohol should be changed to assure proper concentration. For some marine and freshwater taxa, fixation in buffered formalin (for not more than 10 hours) may be satisfactory, but formalin should never be used for long-range preservation of many groups.

The question of proper preservatives for long-term storage has yet to be fully settled. In large part, the nature of the chosen preservative reflects the intended short-term use of the material. For gross dissection, preservation in 75-90% ethyl alcohol with long-term storage in 70% alcohol has proven quite satisfactory. Methyl alcohol produced greater shrinkage, and data on the long range effects of other alcohols have not yet become available. For histological studies, buffered formalin or Bouin's solution is excellent, while for cytological or chromosomal studies there are a variety of specialized solutions available. There are problems with long-term storage in formalin. Two authors of this report (Solem and Thompson) have been able to dissect with success land mollusks preserved in alcohol for more than 50 years, but we have found that land molluscan material fixed even in buffered formalin solution and subsequently transferred to alcohol becomes essentially unusable in two to four years. We are not aware if a similar condition exists in regard to freshwater or marine material, but want to raise the possibility that specimens preserved in other than ethyl alcohol may have a short shelf-life.

A basic difference between amateur and scientist involves the "cleaning" of specimens. The former will remove any incrusting organisms and often the periostracum as well, and will polish and oil the surface. The latter prefers to leave on the extra matter for additional study and to avoid any damage to the shell that might interfere with future microscopic or chemical studies. We recommend that at least a portion of each lot be preserved, wet or dry, without mechanical or chemical cleaning.

The exact methods for preserving newly collected material will depend upon the intended uses over the short term for that collection as determined by individual researchers and curators. We would recommend that at least a portion of any land mollusk material be preserved in alcohol.

ACQUISITIONS AND DEACCESSIONS

Among biological collections, those of mollusks are unusual in that 80% or more of the materials in major museums were originally collected by amateurs. Frequently they were only deposited in museum collections after many years in private hands. Despite increased field activity by research scientists, the role of the amateur in expanding the molluscan data base is, and will remain, crucial. Thus it is important that the amateur understand not only the modern requirements for specimen annotation, but have an appreciation for the problems faced by institutions in coping with new additions. Institutions must balance the desire for timely and appropriate recognition of an individual contribution against the needs for efficient housing and management of materials so that they may be maximally available for research.

With the exception of a few specialized situations, such as field collections under current study, nearly all molluscan collections are housed in systematic order. Hence new material must be accepted in a way that permits eventual integration of this material into the main collection sequence. By recording the name of the donor on the standard museum label that will go with every set of specimens from the donated collection, the contribution of the donor will be permanently recorded through the years.

Museums cannot, in this day and age, accept gifts of mollusks from donors who require perpetual maintenance of their collections as separate units. An agreement for temporary display of a donor's collection or retention of it for a limited number of years as a separate unit is an acceptable compromise, but even this should be discouraged. Today, most museums have adopted priorities for accessions, generally giving highest priority to materials immediately usable in research or to voucher specimens documenting published research.

The removal or deaccessioning of specimens from a collection requires considerable care and thought. Specimens that are vouchers of published research, regardless of whether they are nomenclatural types or not, should be kept even if the data base is inadequate by modern standards. The most satisfactory way to select material for deaccessioning is for a specialist in a taxonomic group to review a collection and indicate any parts that no longer have significant scientific value.

Deaccessioned specimens can continue to be of value for display or teaching; they may be used for exchange to amateurs or others; or they may, as a last resort, be sold, preferably by public auction, to generate funds for new accessions. Most institutions have formal guidelines concerning deaccessioning to protect both donor and institutional needs.

From: CURATOR 24/1, pp. 21-24

(To be continued.)

OF LOCAL MOLLUSKS:

SPISULA SOLIDISSIMA (Dillwyn, 1817) Surf Clam

> Size: Very large, up to 8 inches long, 6 inches wide. Most specimens are smaller. Description: The valves are somewhat triangular, massive, rather chalky, dead white in color, but frequently stained or partly covered by a dull, brownish or yellowish periostracum, most usually eroded away in beach shells. The inside, just under the beaks, has a large pit-like saddle in which rests a dark brown, resilient cartilaginous mass (resilium) that serves to cause the valves to spring open when the muscles relax.

This is the largest bivalve on the east coast. It is the most common beach shell in Rockaway and other ocean beaches. Winter storms throw it on shore in astounding profusion. It lives in the sand, usually below the low-water mark, and burrows slowly with its strong, ivory colored, tongue-like foot. It serves as an important article of diet for the local hordes of sea gulls who have learned the trick of picking up the clams in their claws, flying high with them and then dropping them upon the hard earth where they crack open and permit access to the soft food within. Sometimes the concrete bridge that leads from Far Rockaway to Atlantic Beach is literally covered with the remains of Spisula shells broken in this fashion. The young of this species makes a very tasty chowder.

From: SHELLS OF THE NEW YORK CITY AREA
M. K. Jacobson & W. K. Emerson,
Argonaut Books, 1961. p.96

SURF CLAMS

Surf clams (locally known as sea clams, skimmers, hen clams, or bar clams) (= Spisula solidissima -Ed.) are familiar to most individuals who regularly comb the mid-Atlantic beaches -- the shells are about the size of an open hand and make good ashtrays. The shells are roughly triangular, the inside surface is smooth with two circular scars showing the attachment points for adductor muscles that draw the shell halves together. Color of the shells may be variable -- grey/black, brown, or white. When held together, the shell's halves gape slightly at the posterior edge where the siphons protrude.

The most obvious feature of the soft-tissue anatomy is the large wedge-shaped foot muscle. Surf clams are active burrowers and can completely dig themselves into coarse sand substrata in a matter of minutes. The foot muscle may protrude from the shell, acting as an anchor in areas where currents are strong. Rapid, short-distance movements through the water (leaping) have been observed and are accomplished by a combination of jetting action through the siphons and flexure of the foot muscle.

Aptly named, surf clams range from the beach zone to about 130 m depths, but are rarely taken in waters deeper than 40 m. Distribution is limited to western North Atlantic waters from the southern Gulf of St. Lawrence to Cape Hatteras. Surf clams are distributed throughout the region: occurrences of discrete high density areas (beds) are unpredictable.

Sexes are separate and most individuals are capable of spawning at the end of their second year. Eggs and sperm are shed into the water where fertilization occurs. A planktonic larval period lasting about 3 weeks (at 22°C) precedes settlement. During the larval period the small clams are subjected to current patterns that may disperse them far from the release point.

Growth rates are rapid compared with other inshore clam species. Commercially usable sizes (12 cm shell length, or about 4.5 inches) are reached about five years after settlement. Maximum life span is not precisely known but is probably in excess of 20 years. Surf clams are the largest of the bivalves naturally occurring in the western North Atlantic, specimens up to 20 cm shell length are common, and the largest recorded clam was 22.6 cm (8 7/8").

Almost everyone has at some time or other consumed surf clams, as they historically were the mainstay of the processed clam industry in the United States. Such products as clam chowder (Manhattan and New England), minced clams, dips, juices, and fried clams are made from various clam parts. The most valuable portion of the surf clam is the foot muscle which can be sliced into thin strips and fried.

Earliest recorded uses of surf clams were in the 1600's when Indians gathered clams cast ashore during severe storms. The first organized commercial fishery began on Cape Cod during the late 1870's supplying bait for the handline cod fleet. The modern food fishery began in the 1940's in response to heavy, wartime demands for shellfish and other protein foods. Total landings quadrupled between 1944 and 1945 (1.2 to 4.8 million pounds); almost all of this exploitation was off Long Island, New York. Recent annual landings (1965-1979) have varied considerably in quantity and location of capture. Total annual New York production (derived almost exclusively within 3 nautical miles of the coast) has exhibited the most stability, averaging 3 million pounds yearly. (Poundage figures refer to the shucked meats of the clams. -Ed.)

Management efforts began in 1972 under a State-Federal committee. With the passage of the Fishery Conservation and Management Act of 1976, all surf clams 3 to 200 miles from the coast came under Federal jurisdiction. A management plan promulgated November 1977 includes catch quotas and provides for closures of areas to protect clams smaller than the commercially usable size.

From: CLAMS AND SCALLOPS OF THE NORTHEAST COAST
by: Steven A. Murawski and Fredric M. Serchuk
of Woods Hole Laboratory
in: UNDERWATER NATURALIST, Bulletin of the
American Littoral Soc., October 1980

NIGHTTIME POACHERS APPREHENDED

A clam boat operator from Virginia has been penalized $5,000 for taking 384 bushels of surf clams from uncertified waters.

An Exmore, Virginia resident was charged with clamming in uncertified waters, a misdemeanor under New York State law. He was caught at 2 a.m. Saturday, December 12, by state environmental conservation officers who observed the man's 95-foot boat operating in the Atlantic Ocean off Rockaway Beach. Because of pollution, the waters off Rockaway Beach are closed to clammers, except for those with special permits.*

The officers boarded the boat and found 12 full baskets of surf clams, each basket holding 32 bushels. The officers seized the clams, had them dumped back into the water, and cited the owner for the violation. His boat, registered in Virginia, was ordered back into port.

The Virginia man agreed to the $5,000 civil penalty during an administrative proceeding. Other charges are still pending against members of his crew.

Surf clams (Spisula solidissima) are used in processed seafood. A person who eats contaminated clams can experience illnesses ranging from stomach cramps to hepatitis. The waters off Rockaway Beach have been uncertified since the early 1970's because of contamination of the clam beds.

Ben Marvin in New York State ENVIRONMENT
11(2/3): 18, Jan. 29, 1982

*See NYSC NOTES 269.6 re: depuration plant at Great Kills.

(As of February 22 the wholesale price of surf clam "strips" was $14.50 to $15.00 per gallon. -Ed.)

HOW MANY MOLLUSCAN SPECIES?

Browsing in our books, we found the following estimates of the number of known molluscan species:

1884: Holder and Holder. 20,000 living species and 19,000 fossils.

1949: Winckworth. 65,000 existing named species (31,643 marine, 8,765 freshwater, 24,503 land).

1954: Abbott. 100,000 existing described species (80,000 snails, 15,000 clams, 5,000 other species).

1970: Boss. Nearly 47,000 species (of which 7,500 are bivalves and 37,500 are gastropods) including species yet to be discovered. About 35,000 species are known.

1975: Palmer and Fowler. 85,000 species of which 45,000 are living.

1978: Wagner and Abbott: About 60,000 living species (of which) 10,000 are bivalves.

Twentieth century estimates of the number of existing species average 61,000. (Variations due to "splitting," "lumping," "eureka!"?)

D. Raeihle

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NEW YORK SHELL CLUB NOTES No. 282 May 1982 Page 1

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 426, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, MAY 9th, 1982, at 2:00 p.m.

PROGRAM: A VISIT TO THE ISLAND OF ANGUILLA IN THE CARIBBEAN
Color Slides and Travelogue by Sol Weiss

DISPLAY: ANGUILLA BEACHCOMBING
by Sol Weiss

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FOCUS ON CONCHOLOGY on Cable TV

Richard Goldberg announces that his television show, "Focus on Conchology," will be on Manhattan Cable TV, Channel "D" on the following dates:

April 21, 1982 - 7:00 p.m.
April 30, 1982 - 12:00 noon
May 1, 1982 - 11:00 a.m.

The show has been edited from its 50-minute original format to 28 minutes and includes segments not seen in the original version. The show covers the hobby of shell collecting, how people get into it, and particular aspects of the hobby - shell clubs, shell shows, shell auctions, etc. Various opinions about shell collecting are fielded by amateur collectors, professional dealers, field collectors, and malacologists.

This is the first TV show dealing directly with our hobby. It is also slated to be cable-cast on a number of Long Island cable stations, but at this writing no dates were confirmed.

SUMMER DATES

The 48th annual meeting of the American Malacological Union will be held at New Orleans July 19-23, 1982, with headquarters at the Fountain Bay Club. Presiding will be President Louise Russert Kraemer of the Department of Zoology, University of Arkansas, Fayetteville, Arkansas 72701.

The Jacksonville (Florida) Shell Show will be held at the Jacksonville Beach Flag Pavilion July 30, 31, August 1, 1982.

HIGHLIGHTS OF THE MARCH MEETING

Indicating a partial list, on the board, of material that has been donated to the April auction, President Fred Cannon noted that more donations are needed. He displayed two specialty items that have been donated: a mirror in a frame set with shells, made by Mary Snediker, and a shell necklace. Both inspired expressions of approval. Nick Katsaras reported that he has written to contacts overseas, requesting donations.

Sol Weiss announced the forthcoming Long Island Shell Club Shell Show, to be held May 1st and 2nd at the Freeport Recreational Center, 130 East Merrick Road, Freeport.

Bill Old reported briefly on his experiences in acting as judge, recently, at the St. Petersburg and Sanibel shell shows. He recalled having met six or eight former Club members who have moved to Florida.

The speaker was Bruce Einsohn, whose subject was "Shelling and the Solar Eclipse in Siberia." He was one of those who journeyed to Bratsk, in southern Russia near the Mongolian border, to observe and photograph a total eclipse last summer. He noted that the temperature there on the day of the eclipse was 95°. He showed his photographs of the eclipse, and of sights in Moscow, Leningrad and Petrovsk. These included Red Square, the Hermitage and the Summer Palace. In the latter, he made several good interior shots. His picture of the Leningrad zoo made it clear why he compared it to the Central Park zoo, which has lately been under public criticism. He then showed close-ups, made by Richard Goldberg, of the land and freshwater shells he collected. The names familiar to those who collect in this area were *Succinea*, *Cionella*, *Retinella*, *Discus*, *Euconulus*, *Vallonia*, *Helicidae*, *Sphaerium*, *Viviparus* and *Lymnaea*. The last three he collected in the Gulf of Finland, at Leningrad.

Milton Werner, Recording Secretary

STANDARDS FOR MALACOLOGICAL COLLECTIONS

Part III of a report by Alan Solem of the Field Museum of Natural History, William K. Emerson of the American Museum of Natural History, Barry Roth of the California Academy of Sciences, and Fred G. Thompson of the Florida State Museum. This report was prepared for the Council of Systematic Malacologists and was adopted by the Council in July, 1980.

STORAGE OF MALACOLOGICAL SPECIMENS

With the exception of some very thin-shelled taxa (such as the New Zealand land snail genus *Paryphanta* or some unionid clams), molluscan shells in collections are relatively tolerant of wide changes in temperature and humidity. Cracking or peeling of the periostracum is usually the most serious result of major temperature changes. In contrast, most shells have pigments that fade rapidly upon exposure to daylight, and nearly all mollusks can be severely damaged by chemical pollutants in the air. Hence permanent storage in light-tight and dust-proof cabinets is considered essential for long-term preservation of dry specimens.

The methods of storage for dry specimens can be, and are, quite variable. Rather than recommend a single system or a series of alternatives, we choose to suggest a set of flexible guidelines. Basic cabinet trays of metal or wood can be 15" x 20" to 20" x 30" in size, preferably capable of being slotted into cabinets at intervals variable by 1" so that adjustments can be made for storing specimens of varying heights. These trays should be interchangeable among cabinets to facilitate collection expansion. The use of cardboard unit trays of varying but complementary sizes, for example, with widths and lengths of 1" x 3", 2" x 3", 3" x 3", 3" x 4", 3" x 6", 3" x 9", 6" x 6", 6" x 9", 9" x 12", provides the ability to accommodate specimen lots of widely different numbers in the same cabinet tray. It is recommended that specimens small enough to be stored in glass vials be housed in this manner. A cotton plug in the vial seems to inhibit fungal growth and prevent damage better than use of a cap. Flint glass rather than old-fashioned soda glass is preferred. Available plastic vials may not be of lasting quality, so that storage "for a century" in plastic seems risky.

Association of label data with specimens is best insured by having the individual catalogue number written, where size permits, on each specimen shell and on the lot label. Such accidents as dropping of a tray containing many lots of the same species or through routine manipulations of directly comparing material from different lots will not have serious consequences with this kind of labelling. At many institutions, original labels are housed directly with the specimens. This may be accomplished by placing all labels inside the same vial as the specimens, or by placing the labels on the bottom of the individual lot trays with the specimens on top. Where shortage of curatorial or volunteer help prevents meeting the above recommendation that numbers also be recorded on each shell, a less satisfactory but acceptable method is for the lots and labels to be housed in closed cardboard boxes, or snap-top boxes, to reduce the possibility of specimen mixing through dropping. This method fails to present any safety against mixing during study or handling.

As the sizes of molluscan collections increase, the luxury of housing only one lot of small shells per unit tray may have to be replaced by a system that permits the housing of multiple sets in vials in each unit tray. With small-sized specimens, this procedure can increase the storage capacity of a large tray twentyfold. However, this should be done only as a last resort, considering the disadvantage to users of the collection. Micropaleontology slides with labels applied to the back are another option.

The use of climate control appears mandatory under tropical and subtropical conditions because of humidity. It is necessary to at least retard, if not totally prevent, damage to or actual loss of specimens through fungal growth. Collections of land snails at the Raffles Museum, Singapore, were effectively destroyed by fungal growth during the 1960's. Temperature control seems to be of less importance.

Wet collections must be stored in such a fashion as to minimize the possibility of individual lots drying out. The use of "home canning" jars, with glass tops and high quality gaskets, has proven most satisfactory for long-term preservation. Jars with snap plastic tops are subject to a much higher rate of evaporation and are not recommended for long-term storage. Even with the better quality "home canning" jars, a check of the entire collection to detect and remedy lowered preservative levels before drying out occurs should be made at least once a year. With the snap-top plastic covered jars, a check at least every six months is mandatory. To minimize evaporative loss, it is recommended that permanent storage involve no jar of less than 0.5 liter capacity. Many lots of small specimens can be housed in an 0.5 or 1.0 liter jar. This provides "space saving" and increased protection against evaporative loss.

Whether a wet collection is stored systematically or in numerical order is a matter for individual curatorial decision. In either case, cross-references to the dry collection should be provided by annotations on a dry collection label, or a separate label stored in systematic sequence in the dry collection. Eventually, computerization of an entire collection should provide such cross-indexing.

SUMMARY

The above recommendations of data requirements, priorities and philosophies of acquisition, and storage standards provide a yardstick to measure the performance of an individual institution or private collection. They will permit judgment of how they are meeting their responsibilities to the future needs of science and society in accumulating and preserving materials of the second most diverse phylum in the animal kingdom. We hope that these recommendations will be viewed as minimum requirements.

APPENDIX I

The definition of what constitutes adequate locality data differs with the habitat sampled and the ecology of the organisms involved. The general guidelines presented below for land, fresh-water, and marine taxa are supplemented by a strong recommendation that collections made in a specific area be documented in the form of stations marked on a map of appropriate scale. The map should be deposited with the specimens and kept either: 1) directly with the catalogue entries for that collection; 2) in a special file of field maps and field notebooks associated with the collections; or 3) in a library support facility of that collection. This is the best way of enabling future reproducibility of collecting stations.

Marine stations — Open ocean stations require latitude and longitude, depth, type of gear used, length of tow, time of day, bottom type if sampled, and as much basic oceanographic data as can be recorded. Near shore localities can be more precisely located by providing compass references to prominent landmarks in addition to the above data. Shore localities should make use of landmark reference points, direction and exposure, tide mark points, substrate, and approximate distance from a point locatable in a general atlas, plus the standard latitude and longitude reference points. Less geographic precision is needed for planktonic taxa or for material taken from a 50-mile-long beach or mud flat than for taxa from a rock reef or coral platform that is isolated from the nearest similar habitat by miles of mud or sand. The more restricted and limited the habitat is locally, the more precise must be the "locator data" needed to enable future finding if the habitat is other than a prominent geographic feature.

Fresh-water stations — Fresh-water bodies are isolated islands (permanent of temporary ponds, marshes, swamps, small lakes) or thin strips (creeks, streams, rivers) in an ocean of land. A combination of distance and direction from a reference point, altitude and stream gradient, latitude and longitude, map grid reference where available, township and section reference in the United States will provide basic data. For rivers and streams, the use of "river mile" citations combined with distance from a reasonable permanent, man-made feature (town, highway, bridge, etc.) will be satisfactory, when combined with a state or county reference. For other bodies of water, an indication of which shore sector, combined with ecological data on vegetation, depth and substrate, is usually adequate when combined with the basic township and section or latitudinal and longitudinal data.

Terrestrial stations — The reproducibility of stations is relatively easy in areas of high topographic relief with prominent landmark features that can be used as locators, and most difficult in areas of little topographic relief without prominent local landmarks. Reference to distance and direction from a body of water, altitude, use of township and section numbers, relationship to a man-made feature, plus the basic county and state locator in the United States, is usually adequate, but the provision of marked maps is perhaps most essential for terrestrial stations.

Fossil localities — Fossil locality descriptions typically proceed from the general to the specific, beginning with the name of a large, well-established geographic feature, often the name of the topographic quadrangle, proceeding to smaller and more local features, and finally describing the immediate landmarks and the outcrop itself. Measured distance and direction from a permanent feature (a benchmark is ideal) permit rediscovery of the collecting station. In the United States, township and section references are widely used and are recommended. In addition to geographic location, a fossil locality description should include stratigraphic data, expressed, if possible, in terms of distance stratigraphically above or below a prominent feature such as a contact or conspicuous bed. The basic rock type (e.g. sandstone or limestone) should be recorded, and a statement of the main rock types and their disposition within the outcrop sampled is desirable. Observations on the occurrence of fossils sampled at the station — their abundance, orientation, and distribution in the rock — increase the value of the sample and are analogous to ecological data on modern mollusks.

From: CURATOR 24/1:19-28
pp. 24-28 (conclusion)

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100 YEARS AGO:

"The Pinna has long been noted for its silk, which is the cable or byssus by which the shell attaches itself to the bottom. Gloves and stockings of Pinna-silk can be seen in the British Museum. Gloves so made cost $1.50 a pair, and stockings $2.75."

From: ELEMENTS OF ZOOLOGY, by C. F. Holder and
J. B. Holder. American Book Co., 1884

MUSSELIN'

From an Associated Press dispatch datelined Hopkinsville, Kentucky, and reported in "The Littorina" of the Louisville Conchological Society 6(6): 1,2:

> MUSSEL POACHERS. Eight scuba divers arrested by federal and state wildlife agents for taking mussels by diving, an illegal method; taking mussels after the legal hours of 6 a.m. to 6 p.m.; and taking mussels without a valid commercial mussel license, were awaiting sentencing as of September 29 after pleading guilty. The mussels were taken from the protected waters of Kentucky Lake. Four pickup trucks were seized, along with four boats and trailers, four outboard motors, scuba gear and burlap bags containing the shellfish, destined for the commercial shell market. Violations are punishable by a fine of up to $10,000 and one year's imprisonment.
>
> - - - - -
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> According to the Louisville "Times" for October 30, the scuba divers arrested for mussel poaching were fined a total of $8,400, and four of these men were also given jail sentences for their part in illegally taking 3,500 pounds of mussels from Kentucky Lake.

In NYSC NOTES No. 89, February 1963, we reprinted an article by Kathryn and Harold Twitty, "Musselin' on the Tennessee," in which the value of the freshwater mussels was given as: "...some worth forty-five to sixty dollars a ton; others, worthless." We wondered about the species these poachers were after and if the prize was worth the risk of high fine and imprisonment. We wrote to Walter Sage, editor of "The Littorina," who referred us to Glen Fallo, Aquatic Biologist, Kentucky Nature Preserves Commission, Frankfort, Kentucky. Mr. Fallo was generous in his response. He writes:

> Man has utilized freshwater mussels throughout history for a variety of purposes. Indians readily used them as a food source. In addition, they used the shells for spoons, beads, tools and, in some instances, as money. In the early 20th century, freshwater mussel shells supplied the resource for a multi-million dollar pearl button industry. Today the Japanese use tiny spheres ground from North American freshwater mussel shells for the "seed" of cultured pearls. Recently, pearls produced naturally by freshwater mussels have become popular in the jewelry industry. I have seen a few television commercials advertising them. Mussel meat has little value today except that it is considered an excellent fish bait. At one time the meat was utilized by farmers for hog and poultry food and was also consumed by people. Incidentally, in a recent issue of "Texas Parks & Wildlife" I saw a recipe for clam chowder using freshwater mussel meat.
>
> There are over a hundred different kinds of these shelled creatures known from Kentucky. This gives our State the distinction of having one of the most diverse assemblages of freshwater mussels in the world. Unfortunately much of their habitat has been destroyed by pollution, channelization, and impoundment. In fact, nearly twenty species are probably extinct and many of the remaining ones are threatened or endangered.
>
> A musseling license is required to take mussels from Kentucky wa-

ters for commercial purposes. The Department of Fish and Wildlife Resources requires that the fisherman submit a report stating the weight of the shells, waters where taken, and the amount for which they were sold, and apparently uses these reports to monitor harvesting activities in the State. Although in Kentucky there is no limit as to the numbers of mussels harvested, there are several species which are protected from harvesting by Federal law under the Endangered Species Act.

Most mussels are commercially harvested in Kentucky by employing an apparatus called a crowfoot dredge. It consists of a bar six to fifteen feet long with as many as a hundred (or more) four-prong hooks suspended two to five feet from it by heavy cord. The dredge is dragged along the bottom of a river or lake usually by a flat-bottomed johnboat. When the prong of a hook touches the soft part of the gaping mussel, the valves of the mussel immediately close on the prong; thus, the mussel actually captures itself. Another type of dredge employed consists of a net attached to a rake. Scuba diving for mussels is illegal in Kentucky.

Kentucky Lake, formed by the 1945 impoundment of the lower Tennessee River, is one of the largest man-made impoundments in the world: approximately 184 miles long, a surface area of 160,300 acres, and its deepest point 145 feet. Several commercially valuable species inhabit Kentucky Lake. They include:

Magnonaias nervosa (Rafinesque, 1820)
Quadrula quadrula (Rafinesque, 1820)
" *nodulata* (Rafinesque, 1820)
" *pustulosa* (Lea, 1831)
Amblema plicata (Say, 1817)
Fusconaia ebena (Lea, 1831)
" *flava* (Rafinesque, 1820)
Pleurobema cordatum (Rafinesque, 1820)
Obliquaria reflexa Rafinesque, 1820

All of the above named species (in addition to several noncommercial species) are apparently reproducing in Kentucky Lake. Moreover, they have successfully invaded areas other than the original river channel. *Magnonaias nervosa* and *Quadrula quadrula* have been more successful than others in making the transition from their natural riverine environment to the present impounded habitat. Consequently, they are harvested in greater numbers.

Magnonaias nervosa is the largest species of mussel found in the rivers and lakes of Kentucky. It may weigh up to three pounds and reach a length of ten inches. Other species are found in all sizes and shapes ranging from a couple of inches up to the size of the above species.

An article in a recent issue of "Impact" (periodical of the TVA Office of Natural Resources) was summarized in the Hawaiian Shell News *XXX*(3): 6, March 1982. It includes a statement that these "button-shell mussels" are harvested at the rate of about 1,000 tons a year, with a worth of half a million dollars. This equals $500 per ton — almost a 10x inflation in twenty years.

D. Raeihle

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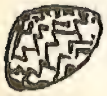

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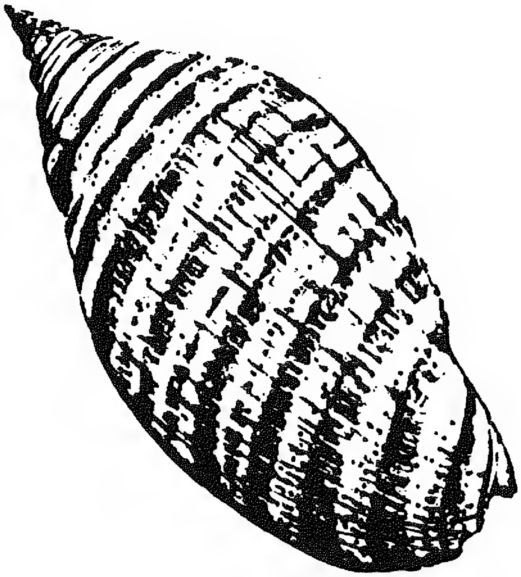

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NEXT MEETING: SUNDAY, JUNE 13th, 1982, at 2:00 p.m.

PROGRAM: ANNUAL ELECTIONS

Speaker to be announced

Display — A surprise

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CONVENTION DATES

June 20th - June 24th: The fifteenth Annual Meeting of the Western Society of Malacologists will be held at the University of Redlands. For details, contact Margaret Mulliner, 5283 Vickie Drive, San Diego, California 92109.

July 14th - July 17th: The 1982 convention of the Conchologists of America will be held on Sanibel Island, Florida, with headquarters at the Sun Dial Beach Hotel. Two field trips are planned: One a trip through the "Ding" Darling National Wildlife Refuge, the second a boat trip to outer islands for shelling. A registration and hotel packet can be obtained by writing to Mrs. John Stephens, Box 217, 425 Lighthouse Way, Sanibel, Florida 33957. For further information you may contact Richard Goldberg, 49-77 Fresh Meadow Lane, Flushing, New York 11365 (telephone: 212: 357-6338).

July 19th - July 23rd: Headquarters for the forty-eighth Annual Meeting of the American Malacological Union will be the Fountain Bay Club Hotel, 4040 Tulane Ave., New Orleans, Louisiana 70119. Field trips and tours are scheduled. For details you may write to AMU President Louise Russert Kraemer, Department of Zoology, University of Arkansas, Fayetteville, Arkansas 72701.

HIGHLIGHTS OF THE APRIL MEETING

The annual social meeting was held on April 18, 1982, at the Broadway Dance Studio, Astoria, Queens. Sixty-five members and guests attended, many arriving early to examine the shells, art work and literature on display.

Following his welcome to those present, President Fred Cannon noted that wine, punch and snacks would be available throughout the meeting. He then introduced Richard Goldberg, who started off the day's activities with a television program.

The nucleus of the program, which had been taped and was shown on a TV set, was three interviews that Richard had filmed at the 1981 social meeting. His subjects were Peter Dance, Dr. William Clench, and Dr. R. Tucker Abbott. He had made this tape for showing on cable TV under the title "Focus on Conchology." Before its appearance he had augmented the program by adding interviews with Bill Old and Bob Janowsky. Their observations represented a broad overview of shell collecting as a hobby and as a science. Richard had also added his coverage of a winter field trip of the Long Island Shell Club to the north shore of Peconic Bay. The quarry was pectens (Argopecten irradians).

Fred then asked Bob Janowsky to introduce two visitors from distant places: Elsy Thoni-Vogt of Switzerland and Renate Skinner of North Carolina.

The annual auction followed, with Bill Old again serving as auctioneer, assisted by Sol Weiss, Fred Cannon and Bob Janowsky, and with Tillie Weingartner as teller. The first item was Al Scarpetti's large black and white drawing of Conus milneedwardsi which had been the poster art for the November Shell Weekend at the Museum. Al had also made two guache paintings as donations to the auction. The larger drew a bid of $105. Mary Snediker donated a mirror with a broad frame that she had decorated with shells. It went for $10. Among the outstanding shells that were offered were Conus victor, donated by Renate Skinner, $115; a grouping of Chitons from Puget Sound in a Riker mount, $60; Murex bednalli, $40; Murex perelegans, $32; Cypraea thersites, $30; Voluta ebraea, $28; Strombus listeri, $21; and Cypraea tessellata, $20.

The well-stocked sale table was again handled by Lee and Frank Nelson. Frank also came into prominence as the winner of the "mystery raffle" prize -- a shell construction not in the first rank among art works.

The real raffle prize, an Acteon eloisae, was won by Jack Odenwald of the Long Island Shell Club -- which made the Odenwalds the winners of the raffle for the third straight year. The door prize, a Chlamys nobilis, went to Monique Caubere.

Milton Werner, Recording Secretary

PUBLICATIONS:

SHELL DESK DIARY

The 1983 Shell Desk Diary is now available for purchase. This 25th edition contains 160 pages, with more than 100 full color illustrations highlighting the theme of seashells and the sea.

Price $4.50, order deadline June 1, 1982. Send orders to Shell Desk Diary, P.O. Box 2663, Houston, Texas 77001.

The Shell Desk Diary will not be available through any other means. Large quantity or commercial orders cannot be accepted.

Shell Oil Company (R. B. Pursche)

FROM THE MAIL BAG:

April 14, 1982

Dear George and Dorothy:

The most recent issue of the New York Shell Club Notes had a couple of papers on Spisula solidissima. The subject of this clam opened up for me a whole train of remembrances of Rockaway and of Karl and Pinky Jacobson.

When I first got to know Karl (1948 and onward), Rose and I went to visit him and Pinky. His collection of books and shells were in the basement and at that time he showed me one of his projects. This consisted of making outline drawings, directly using the shell of Spisula to determine not only maximum size but possible variation in the shape. In addition, in those specimens having drilled holes, he was noting the placement and form of the holes and endeavoring to find out who the driller was. (Karl published "Variations of Spisula solidissima Dillwyn" in Nautilus 57,3.)

The next time we came into first class contact with Spisula was during the AMU meeting in Philadelphia in 1959. On a field trip by bus we went to Cape May, and in some town there we visited a canning factory that put up Spisula for clam chowder and other food dishes. There were a number of large cylindrical containers which were being used in the cleaning of the clams before canning them. I did not give it much thought at the time but a few years later (1966?) a bunch of us including you were at Karl's house in Rockaway. While strolling the beach we decided to gather a large potful of the clams, take them to the house and cook them, and give ourselves a treat. Well, the smell of the cooking was fine -- and there we were with our tongues hanging out. Then we tried to eat them and found the tasty edible meat so loaded with sand, and the broth so strong in flavor, that we gave up and chucked the whole potful into the garbage.

This subject of edible clams led me to remember first that the big job that the canning factory at Cape May had was to tumble the meats for hours, switching the meats from container to container "washing" until the sand was entirely separated. This leads me to believe that the problem of sand is the reason that the American Indians (pre-white invasion) left their kitchen middens piled high with the hard clam Venus or Mercenaria mercenaria. The venerids do not, as far as I know from those I have eaten, ever have sand within the shells. Of course, the Indians also made use of the purple colored margin of the Mercenaria shell to make their wampum -- a term not to be equated or confused with the colonists' concept of money.

As a closing note, it is interesting to remember that when on a field trip to Bayville, on Long Island Sound, I urged members of the New York Shell Club to collect nice large Mytilus edulis for cooking. For many in the club it was probably a first time experience with this fine food, and as the mussels were taken from rocks above the substrate they contained no sand. A hurricane-type storm a few years later completely wiped out the Mytilus population at that site. We also, as part of our collecting excursions at Bayville would stop at a waterfront restaurant to have large, steaming dishes of Mya arenaria -- and I don't recall any sand ever in this species except at the siphonal end.

Anyway, I believe this explains the lack, to my knowledge, of large mounds of Spisula shells left by ancient Indians. The few still undisturbed mounds I saw in Florida were of Mercenaria.

In the intervening years I have had canned clams and sauce often enough, and they are Spisula, but nice and clean of sand.

With fondest memories of the
New York Shell Club members,

Tony

Anthony D'Attilio
Natural History Museum
San Diego, California

LONG ISLAND SHELL SHOW

The Long Island Shell Club presented a very successful shell show May 1st and 2nd at the Freeport Recreation Center, with an attendance of a few more than 1400. Of the many excellent exhibits:

New York Shell Club President Fred Cannon won the Grand Trophy awarded by the Conchologists of America for his exhibit entitled "The Shell — Art in Nature." His presentation (seen at the NYSC Shell Weekend at the American Museum last November) was of five cases, each devoted to a theme: (1) Color, (2) Texture, (3) Shape, (4) Pattern, and (5) Nature's Goofs.

The Dupont Award, given by the Delaware Museum of Natural History, was won by Long Island Shell Club President Mary Ruth Foglino for her outstanding geographical study of "Cerionidae — The Peanut Shell of the Caribbean."

The Shell of the Show was a magnificent specimen of Conus cervus, exhibited by Jack Odenwald.

The People's Choice, voted by the public as "The exhibit I enjoyed the most" was a room in miniature, complete to the tiniest detail, and with mini-cases of mini-mini-shells etc. It was the meticulous work of Howard Zuhowsky, and had to be seen to be appreciated.

Among the visitors was the well known conchiophile Nick Katsaras, who remarked that he couldn't resist buying a few things he didn't need.

dr

THE PHENOMENAL SPREAD OF CORBICULA

Corbicula fluminea (Müller, 1774) is in the freshwater reaches of the Raritan River, New Jersey. Discovered there in March, 1981, the largest shell found (25 mm) was estimated to be three to four years old. (Francesco B. Trama in NAUTILUS 96(1): 6-8, Jan. 1982.)

Accidentally introduced from Japan, apparently with seed oysters (Ostrea gigas), Corbicula was first found in this hemisphere in 1938 in the Columbia River in the State of Washington.

Publisher's Announcement:

DARWIN IN THE NEW WORLD

by J. J. Parodiz, 1981. (iv, 143 pp., 8 pl., 5 maps) Published by E. J. Brill, P.O.B. 9000, 2300 PA Leiden, The Netherlands. Price 26 Guilders (about $10.00). U.S.A. mailing agent: Expediters of the Printed Word, Ltd., P.O. Box 1305, Long Island City, N.Y. 11101.

A hundred and fifty years ago, on December 27, 1831, Charles Darwin started on his memorable voyage on the "Beagle". This book tells of his adventures in South America which are less known, the places he saw and how he found them, the people he met, and the historical background of the countries visited. The author followed Darwin's itinerary and most of the locations are familiar to him; as a professional naturalist he collected specimens in the same places that Darwin did.

An important aspect of the book is the presentation of the correct chronology of the voyage which has always been confusing.

The scientific world will pay tribute to Darwin in 1982 on the 100th anniversary of his death; this book remembers the "historical" Darwin whose image grows ever larger on the screen of time.

(Most of us are acquainted with Dr. Parodiz as Curator of Invertebrates of the Carnegie Museum in Pittsburgh, a post he held for twenty-five years or so until his recent retirement. This book is evidence of a busy retirement, when the work of many years, and many "vacations" was brought together. The book should soon be available through your bookshop. -Ed.)

LIFE AT THE EDGE OF THE SEA

Even maintaining a small bowl of sea water with minute mollusks in it can bring intense pleasure. On February 10th I brought home a bucketful of nice, empty Dosinias because I know that the club can always use these eventually to give to school children or to use in educational projects. These shells were filled often with worm goop because they were stranded in this debris at surf's edge. I decided to look at a bit of the goop under the microscope. There were tiny live Epitoniums in the mess and also some live-looking Cyclostremella humilis and one live-looking Odostomia gibbosa. I popped these tiny shells into a small glass bowl with a little sea water I had brought home, and at the time of this writing (March 9th) the little animals are still living. I did bring back some salt water to add to the bowl from a later February trip. Also in this bowl is my second Elysia from Texas which I took in the Pass bay area. I have enjoyed seeing this little animal again. I brought in some green algae for it a week later but it has not seemed very interested in the strand I provided. Maybe it is not the right kind; I do not know.

Excerpt from SEARCH AND SEIZURE, by Constance Boone
TEXAS CONCHOLOGIST Volume XVI, No. 3, April 1980
Publication of the Houston Conchological Society

(On our Long Island shores, collect similar goop and shreds of bryozoa and hydroids freshly cast ashore. The species may be different, but you'll often find a lot of life. -Ed.)

ON SPECIES IDENTIFICATION

A letter from A.J. (Bob) da Motta of Bangkok to Robert H. Janowsky:

August 6, 1981

Dear Bob,

In an exchange of letters between us, published in the New York Shell Club Notes No. 253, June-Aug. 1979, certain remarks which you made then left such a deep impression on me that they continued to engage my thoughts for a long while. You said in part:

"I think that the basic disagreement that is between us in this issue (species identification) is one that has plagued taxonomic workers from the beginning; we are unable to clearly state just what it is that constitutes a valid species or what it is that separates one species from another .... Most certainly what you consider a minor difference, or perhaps, since there are no clear standards, I might consider there is not even a difference at all."

In a recent article in HSN (copy enclosed) I believe I have found some answers which could possibly lead to the establishment of acceptable criteria to be used as a yardstick, first to identify and then to classify species.

Essentially, there are other parameters of unchanging constancy one can rely on in preference to going by the shell's color or pattern. In fact, if we went by the rules for identifying fossils, we would come as close to any practical system which can be devised, since even biological evidence need not then be considered.

To facilitate investigation into the structural characters of a species, it would help considerably to put the shell in silhouette (see tabulation chart). The more prominent features usually become immediately noticeable. The constant factors of each species can readily separate one from the other. If you now examine the first three species (invariably considered conspecific) you can see we have three differently structured shells. Conus clerii is usually considered a valid species. C. clenchi is claimed to cohabit with clerii. Since their individual constant factors do set them apart, clenchi cannot be a form of clerii. If clenchi is sympatric, it cannot then be a subspecies. Ergo, clenchi must be a separate valid species. C. carcellesi, on the other hand, belongs to an allopatric population within touching range of clenchi. Again, each has its different constant factors. The question here is: "Would they interbreed?" No intermediates have been found to suggest that the two would. The evidence of different constant factors of carcellesi and clenchi would support the conclusion that the forms had already evolved independently in the continuing process of speciation. Therefore, carcellesi must also be a separate valid species. Use the same method of analysis and you end up finding proof that you have six different species even though the color and pattern of each one is very close to the other. But because of the superficial similarity, your lumping inclination can still be gratified by grouping them together under a higher supraspecific level, the subgenus rank. This again is another urgent process of classification which needs to be devised for subdivision at a higher rather than lower level, but that's another problem.

Of course, I am not suggesting, nor making any claim, that I have already found the ultimate solution. I would be more than gratified if I could start people thinking in some positive direction. My precepts are based on observations over a long period, enabling the conclusions to be statistically supported. Most rules will have exceptions, but judgment can be made where there is evidence of consistent occurrence.

Since you were the one who inspired these thoughts in the first place, I feel it would be interesting to seek out your views and, if we could find common ground to stand on, perhaps develop them into a more concrete form for practical application.

I look forward to hearing from you, and with kindest regards,

Bob

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The following article is the one referred to by Mr. da Motta in his letter above. It was originally printed in the Hawaiian Shell News of August, 1981. The line drawings were never published.

STEPS TOWARD A DEFINITION OF SPECIES

By A. J. da Motta

BANGKOK — Elmer Leehman expressed views shared by most collectors and serious students of taxonomy when he deplored the confusion existing in the nomenclatural system relating to Mollusca, in particular the family Conidae (HSN Apr. 1981).

He continues to urge the International Commission on Zoological Nomenclature (ICZN) to impose more stringent controls for naming new taxa, as the solution. I see the problem from another angle, especially when one gets down to its roots. Even if the ICZN were to agree to a revision, it would be exceedingly difficult for a set of new rules to apply to one particular phylum only of the animal kingdom.

The rules must be sufficiently flexible to apply to all the other phyla, as well.

To my mind, the confusion can be attributed to the absence of any standard criteria whereby the status of a molluscan species can be properly determined and then correctly classified. John Tucker (HSN May 1981) gave a succinct explanation of how to separate a species from a subspecies, as well as of the nature of a color form.

To reiterate Tucker's points and to elaborate a bit, he declared:

1. If two species are sympatric, one can only be a form of the other. Otherwise they are separate valid species, because they will not interbreed.
2. A subspecies must belong to an allopatric population, but within touching range of the valid ancestral species or another subspe-

cies. They will interbreed. When some distance separates these populations, unless genetic analysis proves otherwise, the fact that two species have some morphological similarities does not prove that one is a subspecies of the other. The process of speciation from the parent stock may have continued independently, thereby altering the status of the supposed subspecies (Ernst Mayr).

3. A form must exactly resemble the species in its structural shape, although it may differ in color, pattern or superficial sculpture (as smooth, ridged, pustulous or spirally incised body whorl). These variable features may not always be present, but still must occur frequently to justify infraspecific classification. (But note that definitions below the subspecific have no standing under present ICZN rules.)

So far, we have dealt with what still amounts to a theoretic basis for specific definitions before we can conclude unequivocally whether a species is valid. Since such evidence is invariably difficult to obtain, what then could be the next course in order to satisfy the taxonomic need to identify and differentiate between visibly dissimilar creatures?

From continuous observation of _Conus_ populations over the past ten years I have been able to establish statistically that each species tends to develop, upon reaching full maturity, certain specific characterists which are constant, to a great or lesser degree, in the structure of the sutures and spiral whorls, the shoulder and the sides. Magnification of the specimens is necessary, especially in studying the growth striations.

These constant structural factors are:
  a. Are the post-nuclear whorls beaded or smooth?
  b. Is there threading on the spiral whorls, or are they smooth?
  c. Is the spire convex or concave?
  d. Is the shoulder smooth, keeled or coronated?
  e. Are the sides convex, concave or flat?

Each species will exhibit one each of the five main characters, but never two simultaneously. If the spire is concave, it cannot be convex also; if the shoulder is coronated, it cannot at the same time be smooth or keeled, etc. Put the shell in silhouette and the differences immediately become apparent.

I must emphasize that, because many species are shaped differently in their earlier growth stages, the foregoing criteria are applicable only for adult shells.

To illustrate what I am saying, let me offer six look-alikes. In particular, I include _Conus carcellesi_ Martins, _C. clenchi_ Martins, and _C. clerii_ Reeve. These three have been regarded as conspecific by those who base their judgment solely on color and pattern.

Can they really be one and the same species with such distinctly different structural morphology? Certainly not, if one accepts the criteria given above.

These precepts constitute the only basis on which one can identify and classify fossils, which may be totally bereft of color, pattern or biological evidence. This same yardstick can be used -- provisionally, if you like -- to identify living species until the system is ultimately replaced by genetic analysis.

With a system of identifying the status of a shell without guessing, we could establish the process of classification on very solid basis. A great deal of cleaning up could be undertaken at once.

There would be no reason, for instance, to lump C. capricorn, C. candellatus and C. clarki primarily because all three are white. And instead of lumping C. praelatus, C. episcopus, C. rubiginosus and C. colubrinus as synonyms of C. pennaceus, they could be separated, although remaining in the same complex under the subgenus Darioconus.

Conus zulu would fit into its proper slot as a form of C. figulinus. Conus abbreviatus could be unshackled from C. miliaris, C. laterculatus from C. australis, and innumerable other good species restored to their proper status.

Would-be authors must recognize that it takes more than a difference of color or pattern to qualify a new species. Perhaps they can impose on themselves the discipline that Leehman, and so many more of us, would like to see introduced into the science of systematics.

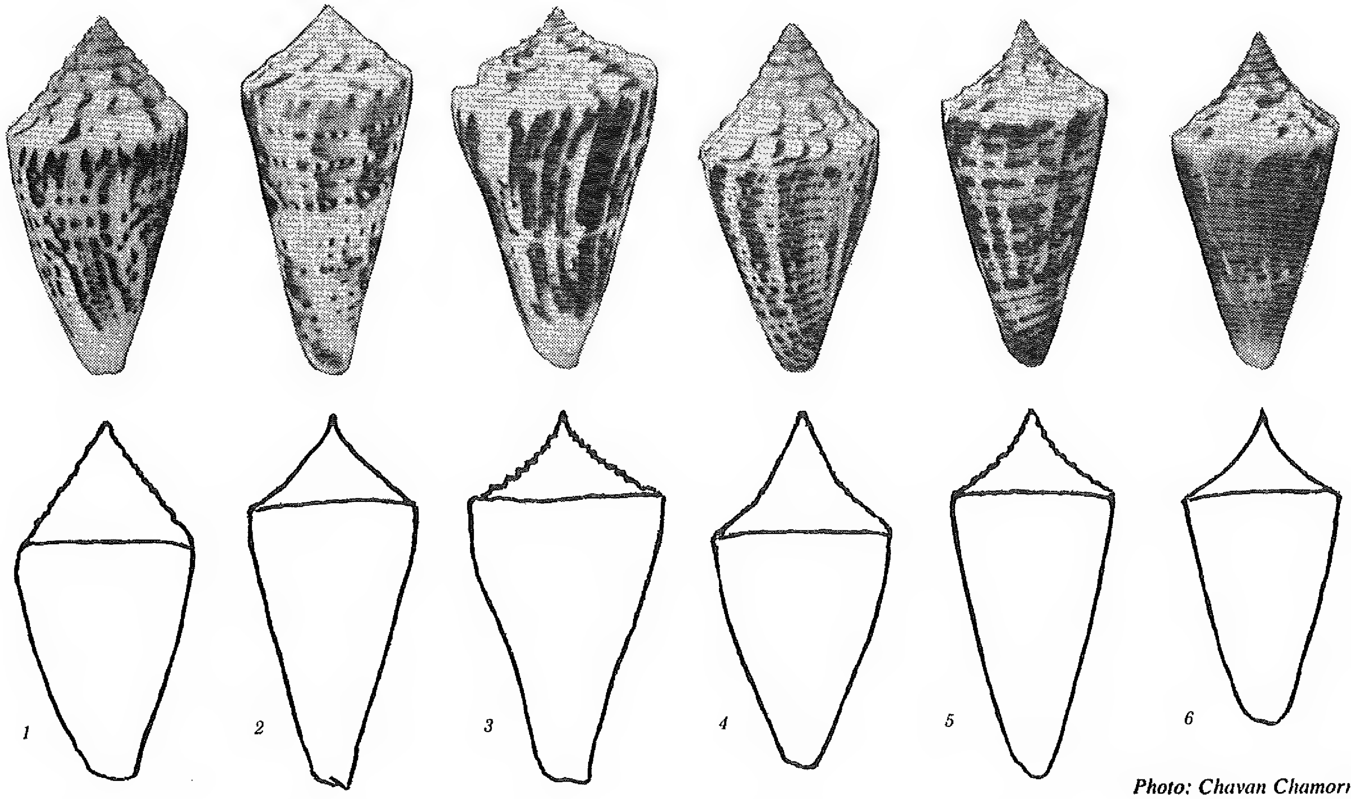

Photo: Chavan Chamorman

	C. carcellesi Martins, 1945 46mm X 23mm	***C. clenchi*** Martins, 1943 41mm X 21mm	***C. clerii*** Reeve, 1844 47mm X 28mm	***C. largillierti*** Kiener, 1848 45mm X 22mm	***C. regularis*** Sowerby, 1833 44mm X 21mm	***C. floridanus*** forma ***floridensis*** Sowerby, 1870 43mm X 21mm
Habitat:	Off Sur la Paloma Uruguay	Off Rio de Janeiro, S. Brazil	Cen. & So. Brazil	Charleston, S. Carolina	Guaymas, Mexico	Gullivan Bay, Florida
Profile:	Biconic, stepped spire	Conic, closely coiled sutures	Turbinate, stepped spire	Biconic, concave from shoulder rising pyramidally to apex	Turbinate	Turbinate, slightly acuminate
Postnuclear whorls:	Smooth	Smooth	Strong vertical ribs, uniformly spaced	Smooth	Beaded	Smooth
Spiral striation:	3 to 4 fine threads	Almost smooth	3 to 4 threads	Almost smooth	Shallowly channeled, 3 to 4 threads	3 to 4 threads
Shoulder:	Subangulate and smooth	Subangulate, smooth	Angulate, carinated	Subangulate	Angulate, carinated	Sharply angulate, smooth
Sides:	Broad, slightly convex at upper part	Flat and attenuated	Broad, with pinched-in waist	Slightly convex at upper part	Flat and attenuated	Flat

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These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC.
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The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 426, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETINGS: SUNDAY, SEPTEMBER 12, 1982, at 2:00 pm

The past three Septembers have brought us Bob Janowsky and this year our president will be using Bob's beautiful slides to start the season with

WONDERFUL SHELL PICTURES

and Games - Fun - Might even be a few PRIZES!!!

SUNDAY, October 10, 1982, at 2:00 pm

Open Meeting

SUNDAY, NOVEMBER 14, 1982, at 2:00 pm

COLUMBARIUM OF THE WESTERN ATLANTIC
by Dr. Jerry Harasewych of Delaware

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HIGHLIGHTS OF THE JUNE MEETING

President Fred Cannon presented two recommendations by the executive committee. The first was that the publishing schedule of New York Shell Club Notes be changed to four issues per year because of the ever-increasing costs of mailing. The second recommendation was that all dues be paid in September, so as to make the treasurer's work easier. Members who have been renewing in other months would be given adjustments for the time difference. Motions that the recommendations be put to a vote were made and seconded, and both passed. Henceforth, Shell Notes will appear in September, December, March and June.

Fred, reporting for the Nominating Committee, could offer only an incomplete slate. He was due to step down as president, having served three terms instead of the usual two, and Mathilde Weingartner wished to retire from her very long tenure as treasurer. The committee had been unable to find a candidate for either position. A call for volunteers from the floor was unavailing. Fred was then persuaded to run again for president, and he, in turn, persuaded Theta Lourbacos to run for treasurer. The committee's nominations for the rest of the slate were: vice-president, Monique Caubere; recording secretary, Milton Werner; corresponding secretary, Carol Lindsay; directors, Waverley Harmon, Bill Old and Harold Sussman; historian, Nick Katsaras; editors (Shell Notes), Dorothy Raeihle and Ed Cowles; advertising manager, Al Scarpetti. By a show of hands, the secretary was empowered to cast one vote for the entire slate.

In recognition of current events, Bill Old had put on display shells from the Falkland Islands. They had been donated to the American Museum by Ian Strange, a Falklands rancher, who had been a speaker at our May, 1963 meeting. More recently he had asked Bill for help, in the form of information and specimen shells, in designing a set of stamps for the Falkland Islands. The Argentine-British war has delayed the return of the shells.

Fred drew attention to a copy of the cover of a forthcoming book, "Freshwater Molluscs of Canada," by Arthur Clarke, and to a copy of a Latiaxis catalog compiled by Phil Clover.

The speaker was Bill Old, who showed a selection of photos of shells of various degrees of familiarity, challenging the viewers to identify them.

Milton Werner, Recording Sec'y

SALUTE TO TILLIE

Mathilde P. Weingartner is a charter member of the New York Shell Club. Her name appears on the first roster, containing 21 names, in NOTES No. 1 which came out late in 1949.

Tillie first took on the responsibility of office in 1955, when she succeeded Anthony D'Attilio as Vice-President - Treasurer, offices she filled for two years. As Ed Cowles took the presidency in 1957 the offices were divided and Tillie was elected treasurer. Thus Tillie has been our firm, faithful and sometimes frustrated (as when calling for dues) treasurer for 27 years, and has certainly earned her retirement from these chores.

Tillie, we thank you.

dr

The following letter, dated April 2, 1982, was addressed to the Department of Living Invertebrates, American Museum of Natural History. Perhaps some of our readers might care to send material.

Adam Gałgański
Uznamska - 4
85-732 Bydgoszcz
Poland

This letter will probably surprise you, but I hope you will receive it with sympathy. I am twenty; I live in Poland. I am one of many people who have been fascinated by the beauty of the underwater world. Mollusca are topics that interest me particularly. Collecting shells is my life passion. I devote much of my free time and energy to my collection. It is not so rich as I would like it to be, but slowly I am gaining more and more specimens, and maybe one day I will be proud of my shells.

As I mentioned before, my collection is not big and that is why I collect all the shells not excluding freshwater and land snails. However, my attention is drawn to seashells (snails) among which I am mostly preoccupied with the following families: Conidae, Cypraeidae, Architectonicidae and Olividae.

Unfortunately, malacology is not a very popular hobby in my country. There are no shell societies, here in Poland, and I am very lonely with my hobby. Because of a little number of people interested in this field of malacology there is almost no literature that accounts for this subject. Being devoid of my own country's literature I am not able to buy any foreign editions as no such exist here. I can not afford buying shells and books from foreign dealers either, as I do not have dollars which are not exchangeable for Polish currency. Even if I had the money there exists no bank that would take the money and make the proper deal. Thus, as you see, collecting shells in my country is very difficult. As I cannot fill foreign clubs' requirements I do not belong to any of them. The only possibility of gaining information is correspondence with collectors from other countries. With my poor information on the subject that is the only help for me.

To say the truth - the notion: favourite families is in my case a little inexact and caused by the fact that all collectors get specialized in something. However, one can get really specialized if he has a direct access to shells and I haven't got it. A very important thing is also an access to scientific literature. Can I specialize having so great problems with that all? I am pleased with every new shell though it is true that I get the greatest joy with specimens from my "favourite" families.

In my country, malacology has few fans and I therefore have great difficulty getting books and periodicals devoted to the life of the mollusks. For this reason I have dared to write to ask for any material connected with my hobby. I would be very happy if you could send me anything that would be of use.

At the end of my letter I would like to say that I will be very happy if I receive an answer from you even if my request is impossible to fulfil.

Sincerely

Adam Gałgański

SPECIAL SALE

The AMNH Shop has been offering "Wonders of the World of Shells" by M. K. Jacobson and W. K. Emerson, and "Wonders of Barnacles" by Arnold Ross and W. K. Emerson at the special discount price of $2.50 each.

The reason behind the bargain is that Dodd, Mead is moving its warehouse out of the state and is remaindering these titles, together with 500 other titles. So get your books the next time you are in the museum — the stock cannot last indefinitely.

Announcement:

COMPENDIUM OF SEASHELLS

An Authoritative Guide, in color,
to over 4,000 Marine Shells of the World

by R. Tucker Abbott and S. Peter Dance

Publication late 1982, E. P. Dutton Co., Inc., New York. 400 pages, 4,300 color plates, bibliography, index, size 8 3/8" x 10 3/4", clothbound. Price $50.00 plus $1.50 for postage, foreign addresses add $2.50 for postage. Early orders numbered and personally autographed. Order from American Malacologists, Inc., P.O. Box 2255, Melbourne, Florida 32901.

Two internationally known experts on mollusks have combined their knowledge and writing talents to produce the largest and most complete, all-color, general identification shell book of this century. Dr. Abbott brings his expertise of forty years at the Museum of Comparative Zoology at Harvard College, The Smithsonian Institution and the Academy of Natural Sciences of Philadelphia, while S. Peter Dance contributes his years of experience as a curator at the British Museum of Natural History and the National Museum of Wales.

A UNIQUE FORMAT!

Every species is illustrated with its own separate color plate, with all the important data at hand, immediately below it:

1. Scientific name, with author and date.
2. Vernacular English name.
3. Geographical occurrence and depth range.
4. Relative abundance or rarity.
5. Habitat.
6. Important synonyms.

The great popular families are fully covered, including double views of 181 species of cowries, 334 cones, 132 volutes, 140 scallops, 73 nutmegs (Cancellariidae) and all the Strombidae, Cassidae, Pleurotomariidae, Neritidae, etc.

Hundreds of unique holotype specimens from Harvard University, the Smithsonian Institution and other American and European museums are shown in full color for the first time, in addition to many beautiful rarities previously hidden away in museum drawers.

The COMPENDIUM is the only popular book to have color pictures of a thousand species of bivalves, including 77 Cardiidae cockles and 192 colorful venerid clams. Not overlooked are those strange objects on the beach that confound the average collector — pseudogastropods, simulated tusk shells and brachiopods.

The COMPENDIUM gives you the leading source-books and indices. Hundreds of monographs are listed under their appropriate genera and families, and a long list of faunal books, useful to local collectors, is arranged by countries.

Publisher's release

If you have not received the detailed order form for the COMPENDIUM, which includes two illustrated pages as they appear in the book, you may write to American Malacologists, Inc., P.O. Box 2255, Melbourne, Florida 32901. A bookplate has been designed for the numbered, autographed copies.

We have seen a good many of the proof plates; color and definition are excellent. The double views are particularly helpful in the identification of "problem" species.

You are invited to reserve now your copy for Christmas, with delivery one week after publication, in late 1982.

No discounts are offered for clubs or multiple orders.

D. Raeihle

ON SALLY KAICHER'S CARD CATALOGUE

When I began collecting shells, there were essentially two "popular" books available: Julia Rogers' classis "The Shell Book" and the late Walter Webb's "Handbook." In the fifty-odd years since, a great many such books have appeared, some excellent, many quite useful, and a few, I fear, not very good. In general, the better books have increased in value, some quite drastically, while those of lesser importance have often been remaindered at substantial reductions in price.

The purpose of this brief note is to call attention to one of the most useful of recent publications which has, perhaps, not received the attention it undoubtedly deserves. This is, incidentally, not a book! I refer, of course, to Sally Diana Kaicher's "Card Catalogue of World-Wide Shells." Over nearly ten years, Mrs. Kaicher has published more than 3,000 3" x 5" cards, each bearing one or more clear photographs of a species, often both enlarged and in natural size, with brief descriptive notes. Cards are issued several times a year in lots of slightly over 100. Most importantly, a large percentage of the photos are of holotypes, taken during visits to the British Museum (Natural History), the Smithsonian, and other important repositories of type material.

Families included thus far are Haliotidae, Trochidae, Epitonidae, Strombidae, Naticidae, Cymatiidae, Muricidae, Nassariidae, Fasciolariidae, Mitridae, Volutidae, Cancellariidae, Marginellidae, Conidae, Terebridae and, the latest, Bursidae. The most refreshing aspect of the entire project is that here we have, not the endlessly repeated "popular collectors' items," in whatever glorious color, but good photographs of species seldom, if ever before, illustrated. While some of the species may be controversial, this is the sort of material that contributes to the resolution of such controversies!

Sally Diana Kaicher first came to the attention of shell collectors in the 1950's, when she published a series of illustrated pamphlets on Indo-Pacific shells. I well recall how eagerly we awaited each one in the series. This was but one of her many accomplishments, as she has been a scientific illustrator and photographer for many years. Those who wish to know more of Mrs. Kaicher's activities are referred to a short biographical article by Edward T. Petuch in the December, 1980 issue of the Hawaiian Shell News.

The present project must consume prodigious amounts of time, energy and patience and, one hopes, will continue for some time to come. Subscribers to the entire series to date will have invested a substantial amount, but there is probably no better current investment for the serious general collector and student of mollusks. While in a vastly different format, this is an endeavor comparable in scope to the famous 19th century iconographies, and is nearly certain to appreciate in value as the years go by. Students and collectors everywhere owe a great debt to Mrs. Kaicher and will find the "Card Catalogue of World-Wide Shells" a most worthwhile addition to their libraries.

The price per lot is now $9.00 plus $.95 postage from Sally Diana Kaicher, 1826 A 54th Place South, St. Petersburg, Florida 33712.

Earl H. Reed

Earl H. Reed
Assistant Director
Springfield Science Museum

Dr. H. E. Coomans brought to our attention a review which appeared in "The Conchologists' Newsletter" No. 73, June 1980, published by The Conchological Society of Great Britain and Ireland. We quote from the review, which was written by Stella M. Turk.

> Vocabularium nominum animalium Europae septem linguis redactum (Septemlingual Dictionary of the names of European animals) by L. Gozmány. Akadémiai Kiadó, Budapest, 1979. 2 vols. Vol. I 44 + 1172 pp; vol. II 1016 pp. L125. Available from Collet's Bookshop.

In Conchologists' Newsletter No. 47:351:352 (Dec. 1973), Mrs. Marjorie Fogan wrote of the herculean task that Dr. L. Gosmány was undertaking in the compilation of this vast Dictionary, listing the common names of some 20,000 animals in six languages with cross-references to the Latin names (the seventh language in the title). Six years later after amassing the names in German, English, French, Hungarian, Russian and Spanish, the work has appeared. It is a tour-de-force of codification. Following 44 pages of introductions written in each of the six languages, the first volume lists in numbered alphabetical order the genera and higher taxa; amongst the qualifications for inclusion, an animal or group must have a colloquial name in at least two of the languages and be at present a native inhabitant of Europe. If a European animal is known by a different European name outside the continent, such a word is also included. Following each name there is a neat formula indicating phylum, class, order and family. Main synonyms are given under the specific name and cross-referenced. In Vol. II the common names are cross-referenced to the entries in the first volume. The following are the English entries for:

Patella vulgata: common limpet; common rock limpet; (US) common tent shell; brennygen; brennyk; lempot; (Scotland) horse-limpet; marmaid; marmadin; meermaid; (Shetland) leepit; (Man) flitter.

Helix aspersa: common snail; (US) brown garden snail; speckled snail; garden snail, large garden snail, common garden snail; brown snail; (US) European garden snail; (colloquial) Jane Jakes; Jean Jakes; Jan Jeak; Ida Jig; Tom-dodge.

I have not yet thumbed through the thousand or so pages of Vol. I to see which mollusc species is the most popular on name criteria, but I suspect it to be Littorina littorea.

Littorina littorea: common winkle; common periwinkle; (US) shore periwinkle; periwinkle; edible periwinkle; edible winkle; winkle; noman; dubs; wrinkle; pin-patches; whelk; gwean; corvin; (Scotland) black buckie; whilk; buckie; buckie prins; deep sea buckie; gill-stoup; kidney buckie; kitcheners; mullag; roaring buckie; sillar sawnies; water stoup; (Ireland) Willick; Willock; horse-winkle; shellimidy; forragy.

Three members of the Conchological Society helped with the names of the Mollusca - Mrs. Marjorie Fogan, Dr. Shelagh Smith and the writer of this review - so there is good coverage. Dr. Gozmány is already collecting material for a second edition and is keen to include ever more names, providing that they have been published and are not just spoken, thus there is certainly scope for more of us to help him. As he says, the Dictionary "might be considered a pioneer work: a result of the collecting of names of animals for several decades (closed at the end of 1975). In want of space, no literature references can be given (more than ten thousand sources have been used!). Every relevant remark aiming at, or any contribution adding to, the improvement of the Dictionary will be welcome (Akadémiai Kiadó, H-1054 Budapest, Alkotmany utca 21)." It would indeed have been helpful to have had the author, if not the date, after each species, but Dr. Gozmány decided to include these "only in cases of confused taxa or designations".

The cultural worth of the Dictionary? In a letter dated 9th January 1980, Dr. Gozmány writes that there is scope for amusing oneself, or serious research into etymology, linguistics, comparative folk-lore, superstitions or popular beliefs "And this is exactly why I loved to compile it and wish to go on for as long as I live."

A DIVE IN THE RIGHT DIRECTION

Barbados established its marine reserve in 1980 and opened it in 1981. Many Barbadians feel that the west coast area should have been declared off limits to anyone but sightseers long before now; that the edict of "take only pictures" has come too late.

Today all activities in the marine reserve are controlled by law, which strictly prohibits the removal of marine life by any method, including fishing with lines or rods. The reserve is divided into several zones. The northernmost area is off limits, a scientific zone reserved for research on coral reefs and marine ecology. Below it is a water sports area for surface sports such as water skiing, parasailing, and sailing. Next, the recreational zone: only dive and glass-bottom boats are permitted, with speed restricted to three knots. Dotting's Reef, a seven-mile stretch that begins a quarter of a mile offshore, is open to scuba divers and snorklers.

Barbara Currie in AMERICAS Nov/Dec 1981

FOREWORD:

In the spring of 1980 there was an exchange of correspondence with Karl Jacobson, in preparation for a series of articles for these NOTES, on the subject of live-bearing bivalves. Karl sent the following material, with instructions to hold it until he could do more research and rewrite related notes. This was only one of several projects he had under way when he died in July 1980.

D. Raeihle

TWO LIVE-BEARING MARINE BIVALVES

It is generally known that gastropods (snails) have their eggs fertilized internally, inside the mother's body, whereas bivalves (clams, oysters, etc.) have externally fertilized eggs. That is, the male gastropod possesses an intromittant organ with which he introduces the sperm into the female's body, while the bivalves - both male and female - expel the sexual products into the sea and fertilization takes place externally. There are some exceptions among the lower ancient snails (archaeogastropods) who act like bivalves when fertilization of the eggs takes place. And there are bivalves who act like the many gastropods that brood their young.

In 1953 a Russian naturalist reported that a heart clam, Cardium elegantulum Beck, from the Barents Sea, was a true viviparous clam which brooded its young in two pouches formed in folds of the mantle inside the mantle cavity. The clam lays its eggs in these pouches, fertilization and the entire development takes place here, and young, completely formed Cardiums with 1.2 mm shells hatch out and leave the parental pouches, to begin life by themselves. The shells bear the characteristic cardiid sculpture of radial ribs. The author says nothing in her article about how the sperm to fertilize the eggs is introduced into the pouches. It is most unlikely that the male clams possess an intromittant organ, but with Nature you never know. Most likely the sperms are shed into the water by the males and enter the female via the incurrent siphons. But don't bet on it.

The tiny bivalve called Cyamium minutum (Fabricius) from near Murmansk, Russia, develops its eggs internally. However, according to the article upon which this NOTE is based, it is not clear whether the young hatch out inside the mother clam and then make their way to the outside, or whether the eggs containing developed young are expelled into the water and the young hatch out there.

mkj

ADAPTATIONS IN EGG BEARING IN SOME MARINE BIVALVIA

T. A. Matveeva

Translated from the Russian by Morris Karl Jacobson

Most marine bivalves expel the ripe sexual products into the water where fertilization and development of the embryos take place. Under such conditions of reproduction the loss of eggs and embryos is especially high, and is compensated by extremely high numbers of gametes.

However, in some species there exists a series of specific adaptations for the protection of developing embryos from the influence of harmful environmental factors, thus decidedly raising their survival rate. The mollusks in which such adaptations were observed occur in various families, often widely separated systematically.

One of the commonest adaptations for the protection of embryos, larval viviparity, is observed in members of the Ostreidae, specifically in Ostrea edulis and O. lamellosa. Individuals of these species expel only the sperm into the water; the ripe eggs of the female are kept in the pallial cavity where they are fertilized by the sperm introduced into the shell by a water current. This method of external-internal fertilization (Beklemishev, 1964) doubtlessly increases the number of fertilized eggs and significantly reduces their destruction. The embryos develop in the cavity in eight days and enter the water as mobile larvae (Ivanov & Strelkov, 1949; Raimboult, 1966; Golikov & Skarlato, 1967). In the case cited, the adaptation appears at an early stage of ontogenesis, the destruction of eggs is diminished, and this promotes the increased effectiveness of fertilization.

In members of the Astartidae the females expel large eggs, reaching 30 mkm, with a rich nourishing yolk, and covered by two protective jackets. In the fertilization of the eggs the gelatinous substance rapidly absorbs water, the jackets swell greatly, the outer one acquires an adhesive quality and attaches the egg capsule to a hard substrate. During the entire period of the development of the egg, the jackets apparently play an important protective role and protect the embryos from harmful situations.

The large eggs are kept in the gonads of the females in comparatively small numbers: thus, according to J. Oertzen (1972), in a shell of average length, 24 mm, the female of Astarte borealis has a fertility of 5500 eggs. For such species distributed in Antarctic waters as Astarte borealis, A. elliptica, and A. montagni, there is a characteristically rapid embryonic development and an absence of pelagic larvae (Thorson, 1935, 1936, 1946; Ockelmann, 1958; Saleddin, 1964; Oertzen, 1972). It is known that in the species which are constantly exposed to sharp variations of external environmental factors, the direct development shows a substantial influence on the survival of the embryos, reduces their rate of mortality, and increases the number of juveniles.

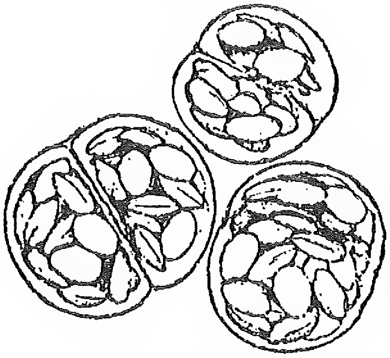


Fig. 1
Egg cases of Turtonia minuta with juveniles ready to hatch.

Among the Bivalvia occur species with individualized egg bearing. In the Veneridae, Turtonia minuta is such a species. It is a small form, up to 3 mm, which appears in massive colonies on the littoral. In this species external-internal fertilization was also observed; large eggs, up to 100 mkm, were developed enclosed in transparent gelatinous capsules, in which are found one to twenty embryos (fig. 1). In the depositions are found embryos at every stage of development and they issue as completely formed mollusks.

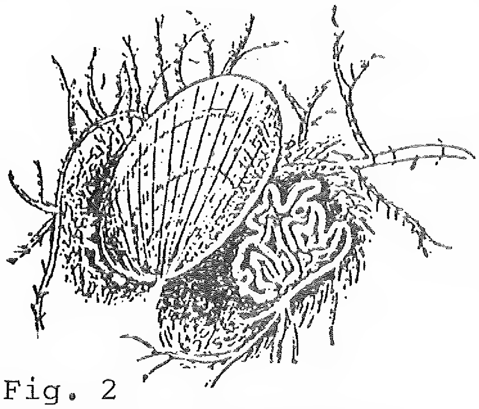
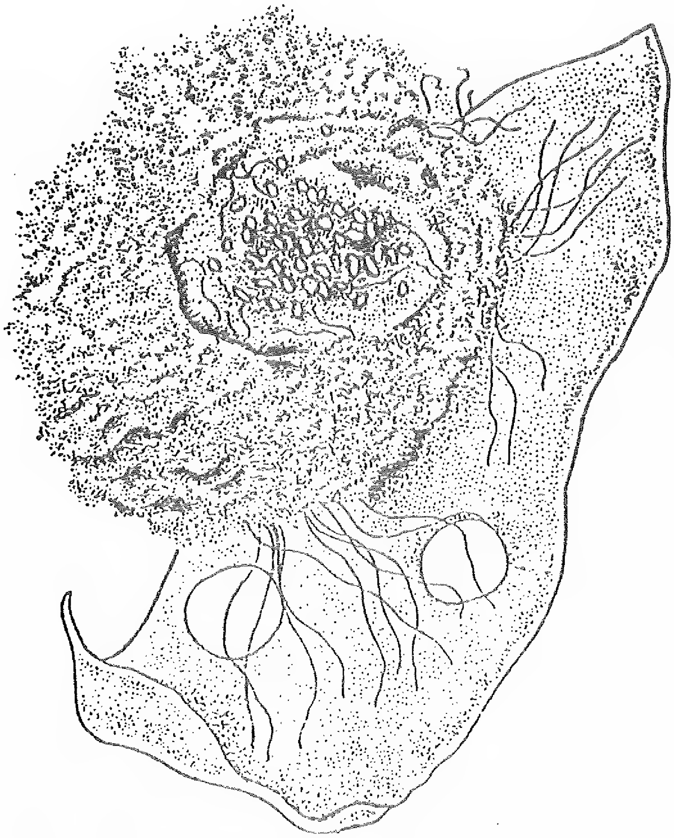


Fig. 2
Egg case of Musculus discors deposited in a shelter.
(after Rusanov, 1963)

The members of the genus Musculus — M. discors, M. laevigatus and M. senhousia — are in the family Mytilidae. The shells of these species are not large, varying from 14 mm to 29 mm in length. The mollusks are fixed by byssal threads to a substrate of seaweeds and form individual shelters around the shell into which the females place the capsules in the form of white, curled strings, consisting of large eggs (up to 250 mkm) attached to one another (fig. 2). The first two species have a direct development; apparently in M. senhousia veligers are ejected, which continue their development as plankton, complete their metamorphosis, and settle on a substrate of seaweed.



In Pos'et Bay in the Sea of Japan and on the shores of southern Kurile Islands there occurs another egg-laying species — Vilasina pillula. The shell is not large, not more than 15 mm in length; it lives on seaweed fixed by byssal threads to the substrate. We discovered that the females form their egg cases, which are viscous, round little bundles measuring up to 12 mm in diameter; the outer casing consists of interwoven byssal threads with a sticky mucous cover, and covered by a thin layer of detritus. This casing gives the egg case a certain eroded configuration and considerably increases its dimensions (fig. 3). Inside the transparent mucous egg case developing veligers were discovered in July. In this case one may assume that embryonal development in this species is direct or with a short planktonic stage.

Fig. 3
Egg case of Vilasina pillula attached to a piece of seaweed, part of the cover removed to show developing embryos within.

Several bivalve species bear (brood) their eggs in special external sacs, attached to the shell. Such an adaptation was discovered (Drew, 1901) in the small mollusk (4 mm in length) Nuculus delphinodonta occurring in sandy ooze in Man (Men?) Bay. The sac consists of a cutaneous material, communicating with the mantle cavity and consisting of 20 to 70 eggs. The eggs are large (210 mkm average), opaque brown, and covered by a transparent case (fig. 4).

In this article all the stages of the embryonic development of Nucula delphinodonta are described; it takes place in three to four weeks and comes to an end in the exit of the young mollusks into the surrounding water.

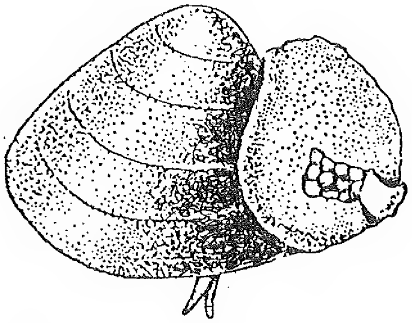


Fig. 4
A view of the exterior of the brood pouch of Nucula delphinodonta containing developing eggs (after Drew, 1901).

Further complications of reproductive methods are displayed in ovoviviparity. F. Gilbert (1963) reported on the reproduction of three species of Carditidae: Cardita ventricosa, C. barbarensis, and C. bailui living in the coastal waters of southern California. The mollusks are comparatively small (7.0 to 12.7 mm in length) and the females bear (brood) the embryos within the shelter of the shell in spaces in the demibranchs (fig. 5). The number of developing embryos in a single female vary from 12 to 50. Seasonal limits of reproduction in Cardita ventricosa are practically nonexistent; according to Dall (1903), females with embryos in the gills are found in populations in almost every month of the year except June.

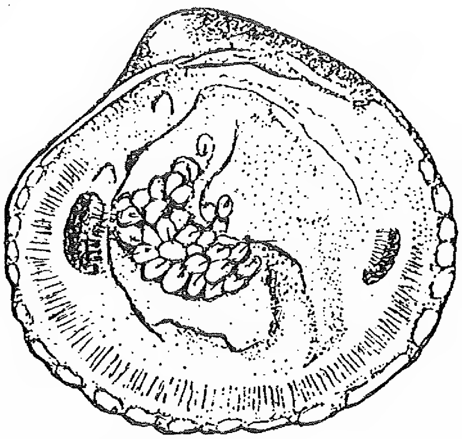


Fig. 5
Adult female Cardita ventricosa with a mantle extension (left flap) inside the demibranch with embryos (after Gilbert, 1963).

Ovoviviparity is observed also in the Barents Sea Cardium elegantulum (Matveeva, 1953). The females of this species deposit developing eggs in two special brood pouches formed by folds of the ventral part of the mantle. The development of the embryo is direct, with no planktonic larval stage, not only within the shelter of the shell, but also within the shelter of the brood pouch itself (fig. 6).

In conclusion, it may be observed that adaptations in connection with the brooding of eggs (a kind of concern for posterity) is found in Bivalvia in various

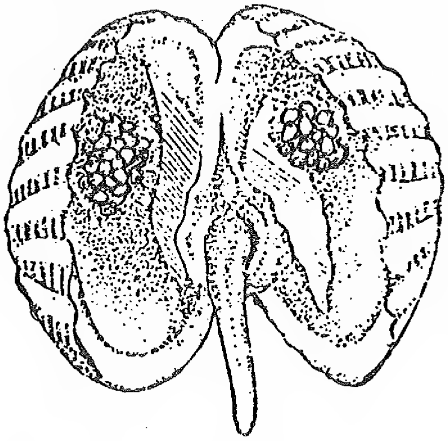


Fig. 6
Opened shell of a mature female of Cardium elegantulum with two brood pouches containing young embryos.

phases of ontogenesis beginning with the early ovum stage and ending with the succeeding embryonic stage. All the morphological adaptations connected with this process are directed to the perfection of the form and method of reproduction, which provide the embryos with protection from unfavorable factors. The retention of yolk in the egg is shown to be an extremely important adaptation for the protection of posterity. According to Thorson (1950), large, yolk-rich eggs in small numbers are in most cases characteristic of direct embryonal development, which decidedly reduces embryonic destruction and increases the reproductive capacities of the mollusks.

It is noteworthy that the morpho-physiological adaptations directed toward the production of eggs and embryos is found in several families and appears in species with small shells or in those inhabiting unstable and severe environmental conditions.

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MORE EDIBLES

In answer to a question about the edibility of the pen shells of our southeastern coast (Pinna carnea, Atrina rigida, A. seminuda), SEA SECRETS responds:

Live pen shells are most easily collected in shallow-water grass flats in bays near inlets where there is a good current and salinity is high. Persons planning to collect these bivalved mollusks for food, however, should first consult local health authorities to determine if the waters are polluted or if there has been an outbreak of toxic dinoflagellates that may have been ingested by the pen shells.

Pen shells bury in muddy sand, with the small end, or umbo, down, and attach by a byssus to some hard object in the sand. Only the lips of the expanded end of the shell are usually exposed. Collectors should wear sneakers as protection against the sharp edges of the exposed lips.

The large muscle of pen shells may be prepared by any recipe used for scallops.

SEA SECRETS Vol. 26, No. 3, May-June 1982, p.4
International Oceanographic Foundation
3979 Rickenbacker Causeway
Virginia Key, Miami, Florida 33149

CONUS VICWEEI

By Victor Wee

About eight years ago I found my very first *Conus vicweei* in a basket among other broken and beach-worn shells, displayed by the side of a road by a shell vendor. The cone shell was broken, beach and faded, but I could see some traces of ziczac markings. Being a "cone man" I immediately picked it up, and as I had always been fascinated by the *bullatus*-type shape in the Textilia group, I naturally purchased the shell. Later, when I went through all my books, I just could not find anything quite the same. It then occurred to me that I could have been conned by the vendor, who could have scratched the ziczac markings on a dead *bullatus* and then polished the shell up again. Not being able to pursue the matter any further at that time, I resumed my collecting, like so many collectors with the sole aim of completing my cone collection, an impossible task.

As the years went by I put together a modest sized collection of some 550 to 600 different *Conus* species or subspecies, but my favourites have always been a drawer labeled "the unidentified ones". Some of these were impressive and some were just plain. Some were very tiny (only half the size of the average *C. sternsi*) and I had a few about nine inches long, which have just now been identified as *Conus fletcheri*. My collection was built up through exchanges, but a great many of the cones were taken by our own shrimp trawlers, and within the drawer that *bullatus*-type cone sat for many years, quite unnoticed.

Then, one day, when the boats returned with two *Conus cervus* I immediately started looking for my dead *bullatus* and after comparing I decided the mystery cone was skinny and more like the *cervus* than any of my *bullatus*. However, with *C. cervus* the background was a glowing orange and there were very outstanding dots and dashes going all around the shell in bands. With my skinny *bullatus* the background was faded and there were these ziczac lines in bands going transversally — it really puzzled me. I figured if I sent it to some museum authority I would only be wasting their time, as it was too faded to tell anything for sure and so, back into my drawer it went.

As for the two *Conus cervus*, I did not retain them in my collection for more than three weeks. A Japanese dealer visited me and he immediately recognized the two specimens and offered me a really fantastic price. It occurred to me that this guy was really "nuts" and I told him so, but he still wanted those two *C. cervus*. Thinking I could probably get some more later, I agreed and sold him both specimens. Since then I have not seen another *C. cervus*. I have even offered to buy them back at a higher price, but it was just not possible. Now I feel pretty sure that I am more crazy than that dealer!

Last year, sometime in mid-August, I went out with the boats and we were trawling fish and shrimp in the usual areas. We brought up *Conus eximius*, *C. anceps* and *C. urashimanus* in the Malacca Straits and then some *Conus andamanensis*, *C. monile*, *C. collisus* and the rare occasional *Conus bengalensis* in the Southern Andaman Sea.

There were, of course, other shells like *Cypraea pyriformis*, *C. walkeri*, *C. miliaris*, *C. pulchella*, *C. nivosa*, *Marginella elegans*, *M.*

strigata, M. ventricosa, Strombus labiosus, S. turritus, S. listeri and many others, especially the bivalve group. We then decided to swing around to Northwestern Sumatra, to the area north of the Batu and Mentawei Islands. It was Indonesian waters and we had to sneak in quietly. Besides a few good hauls of fish and shrimp, we collected Conus generalis, C. loroisii, C. nicobaricus, and more Conus monile. Then we hit the "spot" and brought up two unusual cones and, through their very thin periostracum, I immediately recognized them as the skinny bullatus-type in my drawer back home. The animal was a delicate shade of pink, with splashes of black and around the edge of the foot the animal was reddish. No more were collected on that particular trip or on the subsequent ones. Although we knew the exact spot none came up for quite some time. It was very much later that my third specimen came up and it was definitely the largest of the three.

When the shells were cleaned and the periostracum removed, they were certainly some of the most striking cones I had ever seen. Structurally, the shell is not heavy, with a cylindrical Textilia-type shape and a very highly polished surface. The background is a rich reddish-brown and transversally encircling the shell are two very distinct bands, made up of white ziczac lines running longitudinally and evenly spaded. These shells were certainly unlike any other cones I had ever seen, so I went around looking at museum and private collections, but still could not find an answer to their identity. From a good friend, Ormond McGill, I was told that the best authority on cones is Bill Old. After some letters I sent my three specimens to Bill and when he saw them it struck him, too, that they bore some resemblance to Conus cervus. He spent many months in research and, after comparing them with Conus cervus, these cones proved to be new — thus we now have a Conus vicweei Old, 1973. (See: VELIGER Vol. 16, p.58. -ed.)

I was, truly, most happy to have a cone named for me, and I must say a sincere "thank you" to William E. Old, Jr., the American Museum of Natural History, Ormond McGill and all those who helped make this possible.

> Editor's note: Victor Wee is an established shell dealer in Singapore. His story of Conus vicweei appeared in REEFCOMBER, pp. 4 and 6 of the March 1982 issue, published by the Natal Shell Society.

THANK YOU !

to retiring Vice-President Dorothy Janowsky, and to retiring Corresponding Secretary Marie Sussman for their fine work and cooperation during your terms of office. And a double "thank you" to Fred Cannon as he starts still another term as president. And still another, extremely large "thank you" to Bob and Dottie Janowsky who do the behind-the-scenes work with these NOTES. Without them, there wouldn't be any.

Your struggling editor.

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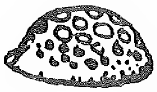

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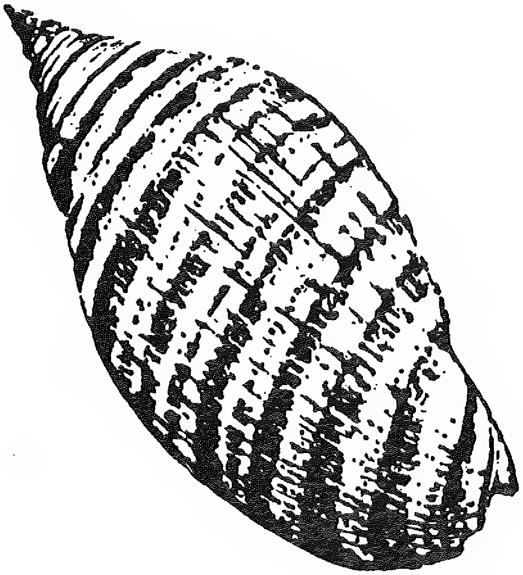

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The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 426, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETINGS: SUNDAY, DECEMBER 12, 1982, at 2:00 pm

SPIRALS FROM THE SEA, by Jane Safer

SUNDAY, JANUARY 9, 1983, at 2:00 pm

BEACH AND REEF SHELLING IN THE GALAPAGOS AND IN THE TUAMOTUS, by Dr. John Bockelmann

SUNDAY, FEBRUARY 13, 1983, at 2:00 pm

To be announced

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AMU 1983

The American Malacological Union will hold its 1983 meeting August 7 - 13 at Seattle, Washington. President Alan Kohn has announced that delegates will have university housing at moderate rates. Dr. Kohn is organizing a symposium on physiology of non-marine mollusks, and of molluscan neurology.

INTERNATIONAL MALACOLOGICAL CONGRESS

Unitas Malacologica is sponsoring the Eighth International Malacological Congress, to be held in Budapest, Hungary, August 29 - September 3, 1983. For information, write to László Pintér at the Natural History Museum, Baross u, 13, H-1099 Budapest, Hungary.

C.O.A. NEWS RELEASE

Conchologists of America announces the appointment of a new Award Committee Chairperson. Any shell club interested in securing the C.O.A. Trophy to be awarded at their show should contact Ms. Anne Joffee, 1163 Kittiwake Circle, Sanibel, Florida 33597 (813-472-3151).

Jay J. Tripp, Secretary

MARCO ISLAND WETLANDS

In Florida, the Marco Island wetlands argument was finally settled. Developers exchanged sensitive coastal lands on Florida's south Gulf Coast (just north of the Everglades) in exchange for land near Miami Airport.

COASTAL REPORTER, Amer. Lit. Soc. Aug. 1982

HIGHLIGHTS OF THE SEPTEMBER MEETING

Theta Lourbacos gave her first report as treasurer, announcing a balance of $2,102.41. She noted that under our new policy all dues are due at the September meeting. Those who paid dues in February 1982 or later owe only half of the $6.50 annual dues.

President Fred Cannon announced the Long Island Shell Club's annual auction, to be held at American Legion Post 304, Manhasset, on Wednesday, October 13. Fred also noted that the current issue of the Museum's newspaper, "Rotunda," announces Ocean Night, September 30, 5:30 - 9:30 pm.

Fred then delivered a tribute to Mathilde Weingartner for her 27 years of fine service as treasurer of the Club. He pointed out that when she took over in 1955 the treasury consisted of a deficit of $2.00 (made up during that meeting -Ed.), and he noted that she had served under 14 presidents. He also recalled that Tillie had been honored as Staten Island's "Woman of the Year" in 1973. Fred ended by presenting Tillie with a certificate of honorary life membership in the Club, and with a mother-of-pearl necklace. After expressing her thanks, Tillie recalled that the day she first gave a program presentation at a meeting, two men also spoke and a third was prevented because his subject was crabs. By the time of the next meeting, all three men had died. Tillie also recalled that the news had given her a queasy feeling.

The day's presentation was put together by Fred Cannon. Using 100 shell close-up slides made by Bob Janowsky, he had made up an identification contest by listing the names and making enough copies of the list to distribute, along with pencils. To make identification easier he had divided the slides into 10 groups, and the list into random-order groups. Frank Nelson scored highest with 93, Bruce Einsohn second with 90, and Ed Cowles third with 76. They, and the three with the lowest scores, each won a shell provided by Fred.

Richard Goldberg announced that he is engaged in taping, for TV, an interview with "Bob" DaMotta. Fred then showed additional slides made by Bob Janowsky, and ran through the contest slides a second time, giving the names of the shells.

Milton Werner, Recording Sec'y

HIGHLIGHTS OF THE OCTOBER MEETING

Under what he described as "Very old business - 61 years," President Fred Cannon drew attention to the 61st wedding anniversary October 8th of Ceil and Mansfield Fuldner. Following the applause that greeted the announcement, Mansfield read a congratulatory note they had received from President Reagan.

Fred introduced the main speaker for the day, Bea Winner, then noted that the pectens in the display case - a handsome and highly varied selection - were from his personal collection.

The first speaker was Bill Old, who commented on his travels during the summer past. He had first toured Europe, following a zoo-to-zoo route. He visited 17 in all. He was then invited to Santa Barbara (California) to judge a shell show. In his remarks on this experience he outlined the various terms under which invitations are extended to prospective judges, and added anecdotal observations on collecting and collectors and on shell shows, ending with some random notes on European museums.

Mrs. Winner's subject was "Marine Gastropoda Egg Masses." Her talk included notes on how and where she had collected or acquired the specimens shown in her photographs, and, for the various species, egg-laying seasons, site selection, the numbers of egg cases and eggs, etc. Her slides covered, for most of the species shown, the shell, the animal, the egg mass, and micro-views of eggs, veligers, and newly hatched young. The species she included in her presentation were: *Fasciolaria hunteria*, *Turbinella angulata*, *Strombus alatus*, *S. costatus*, an *Aplysia*, *Murex pomum*, *Bursa corrugata*, *Bulla striata*, *Haminoea elegans*, *Janthina pallida*, *Busycon contrarium*, *Cittarium pica*, *Phalium granulatum*, *Prunum apicinum*, *Melongena corona*, *Cypraea cervus*, *Diadora dysoni*, *Natica canrena*, *Polinices lacteus* and *P. duplicatus*.

Milton Werner, Recording Sec'y

PUBLICATIONS:

INTERTIDAL INVERTEBRATES OF CALIFORNIA

by Robert H. Morris, Donald P. Abbott, and Eugene C. Haderlie with 31 text contributors. Stanford, CA, Stanford University Press, 1980. 690 p., 200 p. pl., 1800 illus., price $30.00.

INTERTIDAL INVERTEBRATES OF CALIFORNIA successfully combines in a single volume the attributes of a lavishly illustrated identification manual with a well-documented reference book. Although the large format (10 3/4 by 8 3/4 inches) and weight (more than six pounds) precludes the use of the book in the field, the invertebrate collector will find it a primary reference source to answer questions concerning the identification and natural history of the organisms he encounters. The commonly found invertebrates of California's coastal waters are beautifully illustrated in 900 line drawings and 900 photographs and paintings, mostly in full color. A storehouse of biological information is clearly presented in the 500 pages of text, which includes some 5,500 literature citations. Thus, the general naturalist and the beginning student, as well as the professional biologist, will find this book of equal interest, for the publisher has succeeded in providing a volume for "virtually everyone."

This tome was conceived by Robert Morris, a biological illustrator and photographer, who contributed many of the phographs and a section on photographic techniques. Drs. Donald Abbott, professor of biology at Stanford University, and Eugene Haderlie, professor of oceanography at the U.S. Navy Postgraduate School, Monterey, edited and wrote much of the text in collaboration with 31 text contributors, representing a virtual "Who's Who" of West Coast invertebrate specialists.

Following the informative general introduction, a chapter is devoted to each of the major taxonomic categories representing all of the phyla, from the Protozoa (Foraminifera) to the Arthropoda (Insects), commonly encountered in near-shore to intertidal waters. A brief, but comprehensive, introduction on evolution, general biology, and natural history is provided for each major group of organisms. The species accounts include brief descriptions of salient morphological characters, the geographic ranges, ecological and biological data, and species-specific bibliographic references. Extensive additional reference citations are given at the end of the 28 chapters in the systematic section of the text. A line drawing rendered from the plate illustration is placed in the text for each species. The species are numbered sequentially by chapter and keyed to the plates and index. The authors encourage the reader to seek additional information, and they discuss the need to investigate the numerous gaps in our knowledge of the invertebrates.

The 200 plates are arranged by systematic groups and consist mostly of excellent color photographs depicting the organisms at a scale large enough for easy identification. More than one photograph is provided for some of the more variable species.

I believe this handsomely produced and carefully designed tome is destined to become a classic. I know of no other work in this field that is so superbly illustrated or that presents such a wide and detailed range of biological data, a combination of features that will excite the imagination of the layman and will provide all readers with a basic reference tool. Furthermore, the low price of this volume should make it readily available to a wide readership.

William K. Emerson, Curator
Department of Invertebrates
American Museum of Natural History

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Copyright © The American Museum of Natural History, 1982

SPIRALS FROM THE SEA

by Jane Safer. Price $35.00

This book has not been reviewed. It will be described at the December meeting of the New York Shell Club when Ms. Safer will be guest speaker, her presentation entitled "Spirals from the Sea."

Fred Cannon informs us that the American Museum (Shop) is offering a special discount of 20% to NYSC members (Show your membership card.).

Publications (continued):

INVERTEBRATES OF THE SAN FRANCISCO BAY ESTUARY SYSTEM: Acmaeidae, Gastropoda, Mollusca

by David R. Lindberg, xii + 122 pp., 99 figs., The Boxwood Press, Pacific Grove, California, 1981. $12.50.

This well-illustrated and organized identification manual is the second of a projected series of volumes devoted to the invertebrates of the San Francisco Estuary System, the subject of a biological survey being undertaken by the California Academy of Sciences under the direction of Welton L. Lee. Of the approximately 150 extant species of Acmaeidae (commonly called limpets), 54 species are recognized in eastern Pacific waters. Of these taxa, 19 species have ranges that include the mouth of San Francisco Bay, 11 of which occur inside the Bay and are treated as part of the invertebrate fauna of the Bay's estuarine system. Seven of the remaining eight species are included in an illustrated appendix.

The manual is divided into four chapters. The Introduction includes a brief history of the collection of limpets locally, commencing in 1841 with a visit to San Francisco Bay by the U.S. Exploring Expedition and the subsequent description in 1846 by Augustus A. Gould (1805-1866) of two species found there by the Expedition. A list of field stations and a locality map are also given. The second chapter is devoted to the Morphology and Anatomy of the Acmaeidae to give the reader an overview of the shell and anatomical characters used in classifying the acmaeids, with particular emphasis on the diagnostic structures of the radula.

The remaining two chapters, respectively, cover most adequately the Systematics, and the Taxonomy of the family Acmaeidae. Totaling 80 pages, these chapters form the essence of the subject. Chapter 3 contains concise sections pertaining to systematics, distribution and ecology, followed by detailed treatments of identification techniques and methods, including instructions on the removal and preparation of the radula for study, an illustrated glossary of morphological terms used in identification and four sets of taxonomic keys. The precisely devised dichotomous keys to shell and radular characters are outstanding features of this series. They are accompanied by clear illustrations of the shells and radulae and serve equally well for the specialist and general student.

The 13 San Francisco Bay acmaeid species are treated in Chapter 4, with sections on synonymy, diagnostic features, habitat, distribution, and remarks on distinguishing characters, together with illustrations of the radulae and shells, including ecological variants. Seven additional species that have ranges which include the latitude of San Francisco Bay are briefly described and figured. An additional feature is an extensive bibliography, compiled by James T. Carlton, of the literature pertaining to the Pacific Coast Acmaeidae.

David R. Lindberg and his colleagues are to be congratulated for this most useful contribution to our knowledge of the West Coast limpets.

William K. Emerson, Curator of Mollusks
American Museum of Natural History.
Assoc. Syst. Coll. "Newsletter" 10(3):35

Publications (continued):

THE AUDUBON SOCIETY FIELD GUIDE TO NORTH AMERICAN SEASHELLS

by Harald A. Rehder

894 pp., 705 color pls. Alfred A. Knopf,
N.Y., 1981. Soft "leatherback." $11.95.

This is a very attractive, pocket-shaped guide to 671 of the common marine shelled mollusks of the east and west coasts of the United States. The photographs, mostly by James Carmichael, are excellent, with particularly good ones of small, obscure species, such as the Atlantic Nut Clam and the California Barleeia. The text is very well done, with new information not found in other popular guides.

Unfortunately another good shell book has been emasculated by the bird-lover's format forced upon the author by the Audubon Society consultants. None of the scientific names have their authors or dates! Thus, no quick bibliographic searches may be made on names new to the public, such as Littorina keenae and Chama arcana. The more serious collectors will have to consult other guides for this information. Years of training of novice conchologists to use authors and dates are in danger of being aborted.

The choice of species seems, in part, to have been dictated by the available photographs. Why then would the strictly West Indian Voluta musica Linné, 1758, Protothaca granulata (Gmelin, 1791) and Engoniophos unicinctus (Say, 1825) appear in the book, but not our common Triton's Trumpet (Charonia), Angular Triton (Cymatium), Emerald Nerite (Smaragdia) or Elegant Dosinia?

The arrangements of the color plates is supposed to have similar-looking shells placed near each other, but some Terebra appear among the Dove Shells (Columbellidae) and some editor thinks Aspella resembles Fusinus. The visual key by Nehring and Brewer is a space-taking, gimmicky addition that does not work very well.

It seems that no shell book can be produced today without a photograph being "flopped" so that the gastropods are made sinistral. This fate has befallen Abbott, Solem, and Dance, and now Rehder joins the ranks of authors victimized by careless editors with his sinistral Neritina on the back of the jacket.

I find only one small oversight by the author: Crepipatella ligulata on page 463 should be C. lingulata (Gould) and comes from the Latin word lingua.

R. Tucker Abbott

MALFORMED MOLLUSK SHELLS

Abnormal or deformed shells, although probably of minor scientific significance, are interesting, and have rather frequently been mentioned in the literature. Sinistral examples of normally dextral species are prized by some collectors, and the rostrate and/or "melanistic" cowries of New Caledonia and Australian seas are well known. Shells with a scalariform spire, with a deformed or doubled siphonal canal, or with an abnormal hyperstrophic teleoconch are occasionally noted.

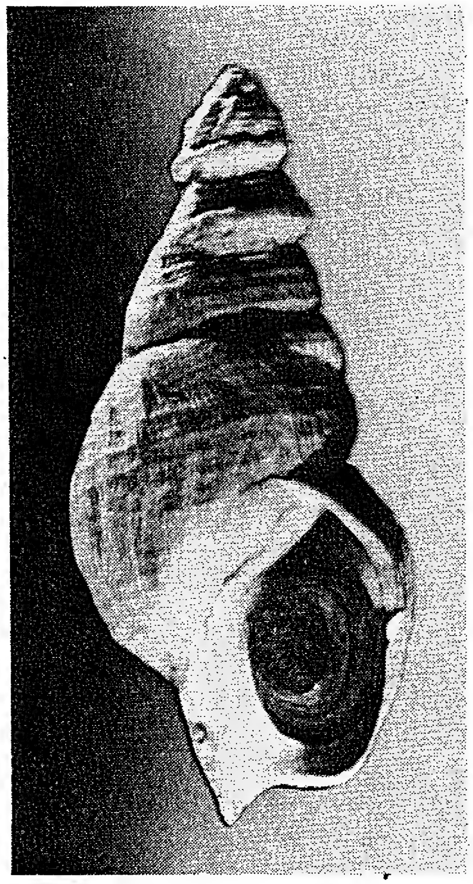
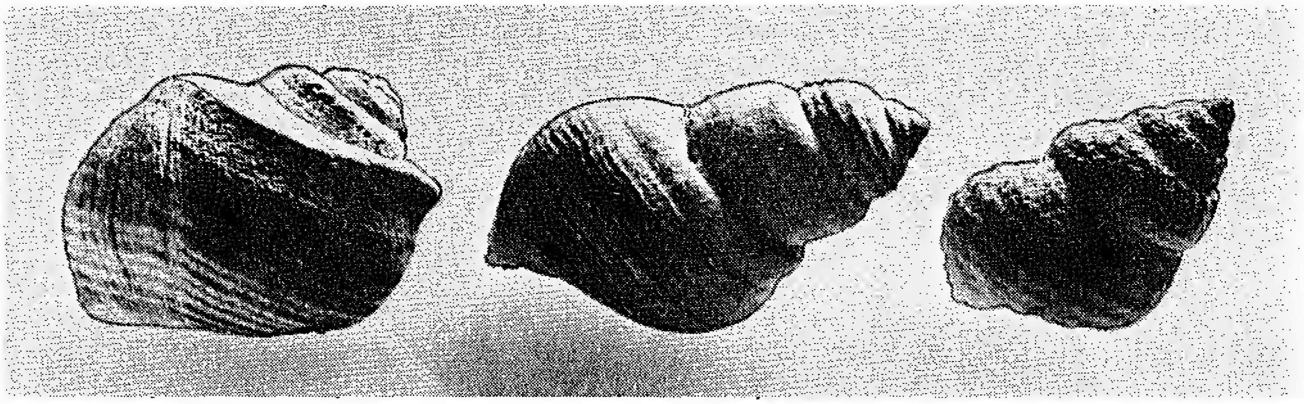


Fig. 1
Buccinum undatum Linné
(x ca 1 1/2) malformed

While some abnormalities may be genetically determined, the majority of the more grotesque deformations are usually teratological, resulting from disease or injury at some prior growth stage.

While collecting in Maine in recent years the author has obtained several such abnormal specimens. The most unusual of these is a malformed *Buccinum undatum* L. (Fig. 1). This was found among a few mollusks being used for bait by youngsters fishing from the Bar Harbor town pier. The early postnuclear whorls are normal, but the final four whorls are nearly devoid of the normal sculptural pattern and are axially flattened, producing an elongate, almost conical form, reminiscent of the "acuminatum" morph of European seas.

The others are all in the genus *Littorina*. Two are scalariform monstrosities, one each of *L. littorea* (Fig. 3) and *L. saxatilis* (Fig. 4). The third is another *L. littorea*, in which the body whorl is deformed by a heavy, rounded ridge, forming a pronounced shoulder on the whorl (Fig. 2). Both of the scalariform specimens were found alive, perched on cobbles in the Wonderland Point area of Mt. Desert Island. The "shouldered" periwinkle was found dead, partially buried in silt and with the body whorl neatly bored, at Hadley Point, also on Mt. Desert Island. Although the soft parts were missing, the operculum was deep within the aperture.



Malformed *Littorina* (x ca 3):
Fig. 4: *L. littorea* Fig. 2: *L. littorea* Fig. 3: *L. saxatilis*

Whatever the cause of these abnormalities, all of the foregoing specimens had survived to reach approximately normal adult size.

Earl H Reed

Earl H. Reed, Asst. Director
Springfield (Mass.) Science Museum

SNAIL PURPLE AROUND THE WORLD

Edward F. Cowles

What did ancient Phoenicia, Israel, Ireland, Japan and Middle America have in common? — the use of mollusc-derived purple dyes.

Of course, Tyrian (Phoenician) purple is the best known of these coloring agents. Although the process was discovered by the Cretans before 1600 B.C., it was in Tyre that wool and silk dyeing came to be most highly developed. From 1000 B.C. until at least in Charlemagne's reign (early ninth century), that city at the eastern end of the Mediterranean was renowned as the source of prized — and expensive — purple-hued fabrics.

Besides its beauty, Tyrian purple had the virtue of being colorfast; vegetable dyes faded in time. Also, the Tyrians devised methods (that today would be called chemical engineering) for producing various shades of color, and maximum permanence. These involved mixing the dye-producing (hypobranchial) glands extracted from Murex trunculus and/or Murex brandaris with the crushed entire bodies of Thais haemastoma, adding salt, allowing the pulp to rot for several days, adding water, simmering for ten days, and frequently skimming off impurities until a greatly reduced amount of pure dye remained. Another method was to prepare dyes — purple and scarlet — from the Murex and Thais separately, and dip fabrics first in one and then in the other. Various lengths of exposure to sunlight resulted in a variety of shades, which were then "fixed" by immersion in a seaweed-derived alkali solution or other mordant.

Since the Murex glands yielded only a small drop of the basic liquid, and the Thais even less, it took 60,000 individual mollusks to produce one pound of dye. This, of course, is one of the reasons for its costliness. Another result was that the enormous refuse heaps made Tyre, as Strabo noted in the first century, "unpleasant for residence."

In contrast, the species used by the Indians of western Mexico and Central America, Purpura patula pansa Gould, is much more liberal with its secretion. On the other hand, it exists in relatively limited numbers, only on rocky coastal outcroppings. To ensure a continued supply, the snails are not killed, but instead "milked." The Indians take their skeins of cotton thread down to the seashore, pick up the mollusks, poke them so they retract into their shells and exude the whitish mucus onto the thread, and then carefully replace the unharmed animals on the rocks — to be available on the next trip. With exposure to light the thread turns green, blue, then purple, whereupon it is dipped into the seawater to fix the color.

In 1970, when this editor visited the remote Oaxaca highland village of Pinotepa de Don Luis, he found that it was the sole production center for the posahuanco skirts with horizontal bands of cochineal red, indigo blue, and snail purple. These garments dyed with natural colors are so esteemed by the Mixtec women for "dress" wear — for weddings, fiestas, funerals — that they command many times the price of aniline-dyed ones.

Across the Pacific, Murex snails were used for dye (as well as for food) in China and Japan. In tenth century Japan, the purple was reserved for the nobility, as it was in Imperial Rome.

Shell mounds in Ireland, dated to 1000 B.C., hold great quantities of Nucella lapillus shells. This (inedible) snail was the source of a dark purple dye in England and Scotland even as late as the nineteenth century. In medieval times, it was used to paint illuminated manuscripts; more recently it served for putting indelible markings on laundry.

Back full-circle, to ancient Israel, we find references in the Old Testament to temple decorations and ritual garments colored scarlet, purple and blue, with snail dyes from Tyre. However, the Talmud's description of the source species for violet or bluish purple could be taken as referring to Janthina pallida or J. prolongata. (You may have read of the collector in Florida who, lacking a bucket, found so many Janthina one day that he stuffed some in the pockets of his white trousers, with psychedelic result.)

THE LATEST IN CONE VENOM RESEARCH IN THE PHILIPPINES

by Foster James Springsteen
(CARFEL Philippine Shell News)

(This past summer Dr. Baldomero Olivera of the University of Utah gave details of his recent cone venom research. We thank CARFEL for permission to bring you this data.)

Basicly, cone shells can be divided into three distinct groups as to types of prey:

1. Fish-hunting cones or piscivorous species. This group includes Conus magus, Conus striatus and Conus geographus.
2. Mollusk-hunting cones or molluscivorous species. This group includes Conus textile and Conus gloriamaris. No doubt, other similar species such as Conus canonicus and Conus bengalensis could also fall into this group.
3. Worm-hunting cones or vermivorous species. This group includes Conus leopardus, Conus betulinus and Conus quercinus.

The anatomy and functioning of the radula system can be summarized as follows: The radula system is divided into three parts: a bulb or sack, which does not appear to be a storage organ, but rather, to be involved in the propulsion of the venom along the so-called poison duct; the poison duct itself, which in reality secretes the poison or toxin and carries it along to the gut area where, by an as yet little understood process, the radula tooth is primed and loaded, waiting for the impetus to trigger its release; the radula sack, essentially a storage vehicle for radula teeth. The mechanism by which the teeth are replaced after each hunting encounter is also little understood at this stage.

The Conus species currently receiving the most study is Conus geographus. Recent analysis of the toxin produced by this species has revealed that there are actually some five main components, not just a single entity. These components have been shown to be short chain polypeptide units, stereochemically oriented with di-sulphide bonds. What this means is that the toxins are made up of units called amino acids, the very components of the protein we eat, and they are held in a specific shape by the use of sulphur atoms in the chain. The type of effect observed and the potency of the toxin is very critically dependent on the sequence of these amino acids, and also the way the sulphur bonding acts.

One isolated toxin component was found to have a depressant effect on the central nervous system of a test mouse. When injected, the mouse appeared to go into a comatose state, awakening some 24 hours later with no apparent ill effects. Another toxin component was found to block the transmission of nerve impulses to skeletal muscles. This component is most likely the one responsible for the respiratory failure seen in cone-sting victims, where the person is unable to breathe because the toxin stops the nerve from contracting the lung muscle. Still a third toxin component has been found to act directly on the muscle itself, by a process which can only be speculated upon at the present time.

One incredible thing which became apparent during the tests is the almost unbelievable toxicity of the venom. Because the venom components are relatively simple molecules, chemically speaking, it has been possible for them to be prepared synthetically. When tested on mice, as little as 1/10,000 of a gram of the synthetic product caused death, even before the injecting needle was removed from the animal. Even when used in much lower concentrations, the end result was always the same, though not as rapid.

Although the toxicity of cone venom can be disturbing to the avid collector, the danger is lessened if simple safety rules that apply to handling cones are kept in mind, and if all Conus species are treated with equal respect. It is important to remember that Conus venom is heat stable under normal conditions, so boiling a cone shell will not necessarily remove risk. The toxin is still active, and can still cause a fatal wound.

In conclusion, one may well ask where the advantage of such research lies. The use of such toxins lies in the fact that they are extremely selective in their mode of action, and also in which organs they act upon. This extreme selectivity is evidenced by the fact that very low concentrations will produce an observable effect. By understanding the nature of the toxins, scientists may develop a better understanding of some diseases, and of more effective medicines for these diseases. An example is the use of the deadly curare toxin in deep abdominal surgery. Its use has led to synthetic substances that are safer and far more controllable in their use. It is hoped that eventually the synthetic products developed from cone venom will be useful in medicine.

Reprinted from THE LITTORINA 7(3); 7, May/June 1982
Publication of the Louisville Conchological Society

THE CONE'S MANNER OF FEEDING

Conus is a biting mollusk. So far, the bite, or sting, of only some larger species (2 - 4 inches), living in the Indian and Pacific Oceans, has proved fatal (geographus, striatus, tulipa and ? -Ed.), but all members of the genus produce a neurotoxin and have hypodermic, harpoon-like teeth with which they inject their poison.

Conus teeth are a modification of the rasping or scraping teeth of the radula, a ribbon-like tongue found in all classes of mollusks except clams. The radulae of most snails are used to scrape algae from rocks, shred flesh or even bore holes in the sea shells of other mollusks but in Conus the ribbon-tongue has degenerated and the chitinous teeth have developed into needle-sharp tubes, barbed on one end, with a knob on the other.

These snails are carnivores, eating fish, worms and other mollusks and their radulae are remarkably specialized for capturing and killing their prey. Conus has a long retractile proboscis which it exerts only when seeking food. Having found its prey, it squeezes a single tooth into place at the proboscis tip. Conus strikes like a snake, impales its victim on the barbed tip of the tooth and injects the neurotoxin while still holding the knobbed end of the tooth in the proboscis. When the prey's death throes subside, Conus retracts its proboscis and draws the victim into the esophagus. If the victim is fairly large and solid, like a small fish, the snail looks for several hours very much like a python that has swallowed a pig. The tooth is swallowed with the prey but there are many more forming or ready for use in the radular sac.

Records of attacks on human beings are scarce. In most cases the biting has occurred during careless handling of a freshly captured Conus. Such bites are described as very painful and sometimes fatal within a few hours. However, few people have been bitten and snail-bite can scarcely be considered an occupational hazard of malacology.

From: CLAMS, SQUIDS AND OTHER MOLLUSKS
by Virginia Orr (Maes) in
FOOTE PRINTS 31(2): 3-11, 1960

OF LOCAL MERCENARIA

The hard clam, Mercenaria mercenaria (Linné, 1758) is the most valuable commercial fishery in New York State, and Great South Bay, on the southern edge of Long Island, has historically produced 80 - 90 per cent of the hard clams landed within the state. This shallow bay is protected from the ocean by the barrier beach of Fire Island and the eastern end of Jones Island. Its outlet to the sea is Fire Island Inlet. The bay stretches about twenty-five miles east and west, from Bellport Bay to South Oyster Bay, and varies from two to five miles in width. Its sandy bottom, eelgrass "forests," and special degree of salinity are important factors for the healthful growth of the clams.

We visited one shellfish "farm" on the bay. Mercenaria were spawned in great tanks and trays. The seed was grown to perhaps 10mm before it was immersed in a vegetable dye that penetrated 1mm into the shell. After the dye has set the baby clams are spread into marked areas in the bay to continue growth. The crimson dye remains in the umbones even when the clam has reached marketable size; it is an identification mark of the shellfishery to prove ownership in case of poaching. Another safeguard was the radar that constantly scanned the waters to warn of unauthorized craft.

The problem of poachers is always present, as witness the following report by Sophie Morris in ENVIRONMENT of January 1982:

> With the arrival of their 24-foot "Superboat", Region 1's Law Enforcement Division has greatly increased its capability for patrolling Great South Bay in search of shellfish violators. The 2.4 liter V6 Mariner engine enables the environmental conservation officers (ECO's) to overtake most nocturnal clamboats.
>
> The boat is used for winter patrol of shellfishing areas and is made to run fast through rough water. Its cost was paid for by National Marine Fisheries Contract money.
>
> This winter's deep freeze also poses no threat to Law Enforcement's efficiency. Their 13-foot Airgator airboat, in use since July 1981, has proved itself on the frozen bay. With its 150 hp Lycoming aircraft engine, compliance checks are easily accomplished on ice. Never used in open water, the Airgator acts as a sled, sliding across the frozen surface.
>
> On Long Island, protection of the multi-million dollar shellfish industry is a large part of law enforcement's responsibilities. In an effort to keep at a minimum the illegal harvesting of seed clams and clams (Mercenaria mercenaria) from uncertified waters, environmental conservation officers, under the supervision of Lt. Gary Meade, must constantly patrol the coast.
>
> Uncertified waters are those in which bacteria levels in the shellfish have reached an unsafe point. Clams below the minimum size determined by the state Fish and Wildlife Law are known as seed clams and are prohibited from being harvested. The Airgator and the Superboat play an important part in discouraging unprincipled clammers from committing these violations and in protecting the harvest for the responsible members of the clamming industry.

Mercenaria mercenaria is marketed in three commercial categories: littlenecks, the smallest (tenderest and most expensive); cherrystones, the next largest; and chowders, the largest. With a legal minimum size limit of one inch shell thickness as measured at the hinge, littleneck harvests are typically comprised of three-to-five-year-old clams. Cherrystones are usually six or seven years of age, while chowders are eight years and older. We found this information in last January's COASTLINES of New York State Sea Grant Institute. But we had to get out level and rule and find a shell in the collection to learn the size of a clam "of one inch shell thickness as measured at the hinge." It was two inches at the widest part of the valve.

dr

IN APRIL '83 - OUR ANNUAL SHELL-SOCIAL

Although it is not yet Christmas, we'd like to remind you that our annual social-with-auction will be here before you know it. As our next issue will be dated "March" (which is short notice for April's affair), we remind you now to mark your April calendar → PARTY ← Remember, too, that your contributions of shells, literature and other items are needed for our auction. Start now to tag them for donation. Meanwhile — HAPPY HOLIDAYS !

FOREWORD: In September 1981 the following article by Dr. Henry van der Schalie appeared in SPARK, a publication of Calvin College where he obtained the first of his degrees. We thank Dr. van der Schalie for his permission to reprint the article in these NOTES.

In an introductory note, the editor of SPARK remarks that "For fifty years van der Schalie was malacology at the University of Michigan. And today he is as busy as when he lectured and served as Curator of Mollusks at the University's Zoological Museum. For thirty years he has been working with the World Health Organization, most recently in Libya, on the blood fluke disease, schistosomiasis.

"Known affectionately as the 'Snail Man,' Dr. van der Schalie has written scores of articles in his fields of interest. . . . He and his wife Annette live on fifty acres on the Raisin River near Manchester, Michigan, where they have established a wildlife preserve."

IS PROFESSIONAL TRAINING TOO RESTRICTIVE or CAN ONE EARN A LIVING WORKING ON SNAILS?

by Dr. Henry van der Schalie
Professor Emeritus of Zoology, University of Michigan

A half century of teaching and research in zoology at the University of Michigan has made me realize how many projects in related fields would have been assisted through interdisciplinary programs. This need for relating information gathered in one field to work in other pertinent fields has generally been recognized by students, faculty, and school administrators. However, the lack of coordination among departments and schools, especially in large institutions such as the University of Michigan, where budgets and even deans are separate, makes the operation of multidisciplinary studies difficult to administer. There always seems to be a shortage (sometimes imagined) of money. And practicality is stressed to the point where there is little regard for the importance of values, be they intrinsic — good, truth, beauty, and justice — or material in nature. There are many stumbling blocks along the road to develop interdisciplinary programs. Some of the frustrations and harm to productive scholarship that result when interdisciplinary work may be recognized, but not practiced, are indicated below.

Can one earn a living working on snails? While the idea does seem to be a narrow approach to a world with many opportunities, it is possible and, in a sense, it is the story of my life. My mother brought her three sons to America when my father died in Amsterdam in 1908. She worked in a shirt factory for seventeen years while her parents (Opa and Opu) took care of us until she had earned enough to buy a house for us in Prospect Park, New Jersey. It is a mark of the greatness of the United States of America that a widow could do so much on her own, relying on the strength of her strong religious convictions and that stubborn Dutch drive to succeed. Her tendency to be outspoken and critical was perhaps unfortunately passed along to me, as I found out many years later, when my Director in the Museum of Zoology kindly told me one should learn to live in a world that is and not in one that ought to be!

After graduating from high school, I was privileged to enroll at

Calvin College (Class of '29) on the recommendation of our minister, the Reverend James J. Holwerda, even though it was after the middle of the school year. There the field of parasitology was opened to me by Dr. John P. Van Haitsma, a truly great teacher and scholar. The influence on a student of the personality of such a teacher cannot be overestimated. Dr. Van Haitsma had studied for his doctoral degree under Dr. George R. LaRue, a world-famous parasitologist, who also became my major professor at the University of Michigan where I did my graduate work.

My graduate program under Dr. LaRue was arranged to permit me to obtain both a Ph.D. and an M.D. degree. Conditions in the early thirties were difficult due to the Depression, so that while my studies were in the Zoology Department, my subsistence depended upon my assistantship in the Museum of Zoology's Mollusk Division. The study of mollusks became so interesting that I was persuaded to shift my major field from parasitology to malacology (or conchology), and Dr. Carl L. Hubbs, an eminent ichthyologist (fisheries expert) directed my research. I should add that when word got back to relatives and friends of this change from medically oriented work to systematics and ecology of "snails and clams," it aroused a few doubts!

It was at this time that I first became aware of the relationship of mollusks to other fields and disciplines. Many worm parasites need specific snails to complete their life histories. Some worm parasites infect humans and this becomes a problem for both medicine and public health; others infect domestic animals, thus involving veterinary medicine. Because most mollusks have shells which remain as fossils in geological "beds," they become important in paleontology and paleoecology. It is a well-known fact that Indians made use of shells for ornaments, jewelry, and monetary exchange, so there is added the intriguing field of ethnoconchology.

My thesis, completed in 1934, was a study of the mussels (clams) in Michigan's Huron River. At that time there were twenty-eight species present and some shoals were literally paved with mussels. Since these animals obtain their food by filtering water through their gills, this is literally a water purification process — of interest to the sanitary engineers. By using what could be learned from the ecology and distribution of mussels in this single river drainage, and relating that information to the fauna of the four major rivers of southeastern Michigan, it was shown that three of them (the Clinton, Huron, and Raisin Rivers) were connected in a dendritic (branch-like) pattern directly to the Maumee River drainage in Ohio at one time in postglacial history. According to geologists, there was a time in glacial history when little or no water was present in what we now know as Lake Erie. Because fish carry mussels as parasites in the molluscan larval stage (called glochidia), a fascinating zoogeographic pattern of distribution can be established. In subsequent studies I found that similar distribution patterns took place in periods of confluence of other Mississippi drainages in post-glacial history. Studies of mussels by myself and others in rivers in southern states (the Cahaba in Alabama, the Chipola in Florida, the Duck in Tennessee) also revealed interesting interrelationships covering the fields of zoology, geology, physiography, and fish-host relations.

The work of malacologists also has implications for the environment. The taking of mussels for buttons and pearls is now regulated by law. At present, legislation is being formulated in an effort to preserve species of some of the mussels (and other mollusks) now becoming rare and endangered. Environmental law has made use of the knowledge thus obtained in litigation against companies polluting rivers with chemical discharges. The Tellico Dam vs. the snail-eating darter is a well-known legal case, but at present there are at least two other centers where the presence of rare and endangered mussels is responsible for preventing the completion of large developmental schemes: the "Tenn-Tom" Seaway project in Alabama and Mississippi on which I have done research, and a dam partly constructed on the Duck River at Columbia, Tennessee. Changing a large portion of a river from a free-flowing stream to a lake can alter or eliminate some of the biota, so the Tennessee Valley Authority and the Army Corps of Engineers, among other agencies, are concerned about finding engineering solutions to these difficult biological problems.

Snails are important intermediate hosts for many human and animal parasites. Schistosomiasis, which afflicts over two hundred million people around the world, is a serious and debilitating snail-borne disease caused by a human blood fluke which penetrates the body by burrowing into the skin and then traveling through the blood stream to various organs. Worms up to several mm in length develop within blood vessels and eggs cause enlargement of internal organs. In advanced stages the disease kills its victims. Exposure occurs through contact with water contaminated by certain infected snails. Distribution of the disease is limited to the presence of the specific snail hosts which inhabit many tropical and subtropical countries in Africa, the Middle East, West Indies, South America, and the Orient. By the way, a similar but non-human parasite of the schistosome family causes "swimmer's itch" (schistosome dermatitis) throughout the Great Lakes region. Since mammals or birds are the normal or definitive hosts, the parasite cannot enter the blood stream of a human but burrows under the skin and dies, leaving a very uncomfortable rash. It is being studied and various control methods are being used to help make our lakes and streams more attractive for tourists and residents.

In the fall of 1952, my wife and three of our four sons accompanied me to Egypt where I worked for the World Health Organization as a part of a team on a project seeking to control schistosomiasis in a limited area through snail eradication in the irrigation canals, medical treatment of infected persons, sanitary engineering to prevent pollution in the canals and, finally, health education of the villagers. Snail control is costly and very difficult. In one year we used seventy tons of copper sulphate to eradicate the snails in the 5,000-acre study tract with 450 kilometers of canals and drains. Unfortunately, on a survey the following summer, we found half again as many snails present. The next year one would not have known the area had been treated. Newer drugs are as yet very expensive and almost prohibitive in developing regions where sanitation is poor. Herbicides are also used in snail control.

Control work is difficult in regions where Islam is the prevailing religion because of the practice of performing ablutions five times a day before prayers. Since the only water available to most villagers is the snail-infested water in the canals and drains, a serious medical problem exists.

There is a tremendous need for better and broader training for persons involved in combatting schistosomiasis in these areas. For example, they should have a basic knowledge of comparative religions and the role of religion in the life style and mores of the people among or for whom they labor. A knowledge of the language — in this case, Arabic — can be crucial. The World Health Organization program in Egypt consisted of four simultaneous studies at this same site involving sixty thousand shots of an antimony compound (Fuadin) given to infected persons, construction of one hundred and fifty new wells and five thousand latrines by sanitary engineers, health education conducted entirely through the local village leaders, and a complex snail control program.

The interdependence of knowledge across many fields is clearly exemplified by the work attempted in these Egyptian villages. The people in those villages were — and are — crowded together in mud huts near the canals because all the irrigated land must be used for growing food and fodder. Farming practices are primitive; schooling is elementary and often limited to the chanting of the Koran; the typical village council has too few trained members and no medical doctors or engineers; the population is exploding. The data indicate that in many villages most of the people are infected with schistosomiasis. The building of the High Dam at Aswan in Upper Egypt has increased (and will increase still more) the incidence of this disease from about six percent of population with urinary infestation (Schistosoma haematobium) to sixty percent more with both the urinary and the intestinal species (S. mansoni).

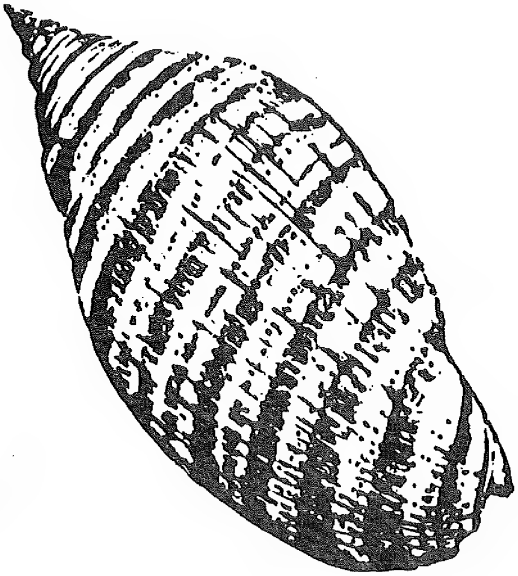
In years following my work in Egypt, I acted as consultant in field work in Japan, Taiwan, Thailand, Laos, and the Philippines where the Oriental blood fluke occurs. This experience again emphasized to me the need and importance of broad training in schools now far too compartmentalized to permit sound interdisciplinary programs for students. As an example, two of our Taiwanese graduate students collected and studied a new human schistosome carried by a surprisingly different snail living in the Mekong River. To determine the incidence of the disease they sacrificed one hundred dogs. As they should have known from the cultural practices of that particular region, killing dogs for any reason is not condoned, and these investigators would not be kindly received if they wished to do additional studies there.

Yes, one can earn a living working on snails. It is no narrow specialization — or it should not be. To train persons for the collaborative efforts needed to solve world problems, educators and school administrators must do more to sponsor and foster interdisciplinary programs of study.

IN FLORIDA STATE PARKS

You may take only shells with no living animal in them. Scallops may be collected for food. Under no circumstances are queen conchs (Strombus gigas) and coral to be collected. A permit is required for collecting land and tree snails.

Fla. Dept. Nat. Resources



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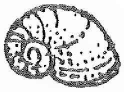
1983 N.Y.S.C. MEMBERSHIP DAYS



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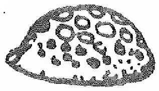

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PRESENT N.Y.S.C. MEMBERSHIP CARD
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ON MEETING DAYS

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FOUNDED JAN. 1949

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These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC.
Dues for all members are due and payable for the fiscal year beginning Sept. 1st. Full membership $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of NOTES per family. Corresponding membership $5.00 per year in U.S.A., $6.50 overseas. A limited number of back issues of the NOTES are available $.65 postpaid per single copy; also bulk rates. Items and articles for publications in the NOTES should be sent to the Editors. The Corresponding Secretary should be notified promptly of any change of address.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in THE AMERICAN MUSEUM OF NATURAL HISTORY, Room 426, with the exception of April (See below, and page 10.).

NEXT MEETINGS

SUNDAY, MARCH 13, 1983	2:00 p.m., ROOM 426, AMERICAN MUSEUM Program to be announced.
SUNDAY, APRIL 10, 1983	2:00 p.m., BROADWAY DANCE STUDIO 31-08 BROADWAY ASTORIA, QUEENS (212: 274-1503) (Directions to studio: page 10.) ANNUAL SOCIAL AND AUCTION (See page 10.)
SUNDAY, MAY 8, 1983	2:00 p.m., ROOM 426, AMERICAN MUSEUM Program: MOLLUSCAN FREAKS, by Sol Weiss

This issue is dedicated to the memory of Bill Old, who gave freely of his friendship to the betterment of all of us.

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American
Museum of
Natural
History

January 3, 1983

New York Shell Club
c/o Mrs. Dorothy Raeihle
211 Milligan Road
West Babylon, New York 11704

Dear Members:

It is my sad duty to inform you of the death of William E. Old, Jr. on December 31, 1982. Bill seemingly was recovering from a severe ulcer attack when he succumbed to an apparent heart attack.

We will deeply miss our close friend and valued colleague, but fond memories of his engaging jovial spirit will forever live in our hearts.

As a memorial to Bill, the American Museum, which has benefited by his dedicated services for the past 22 years, has established the William E. Old Malacology Fund. Contributions to the Fund will be used to support the Department's malacology program, especially the collection.

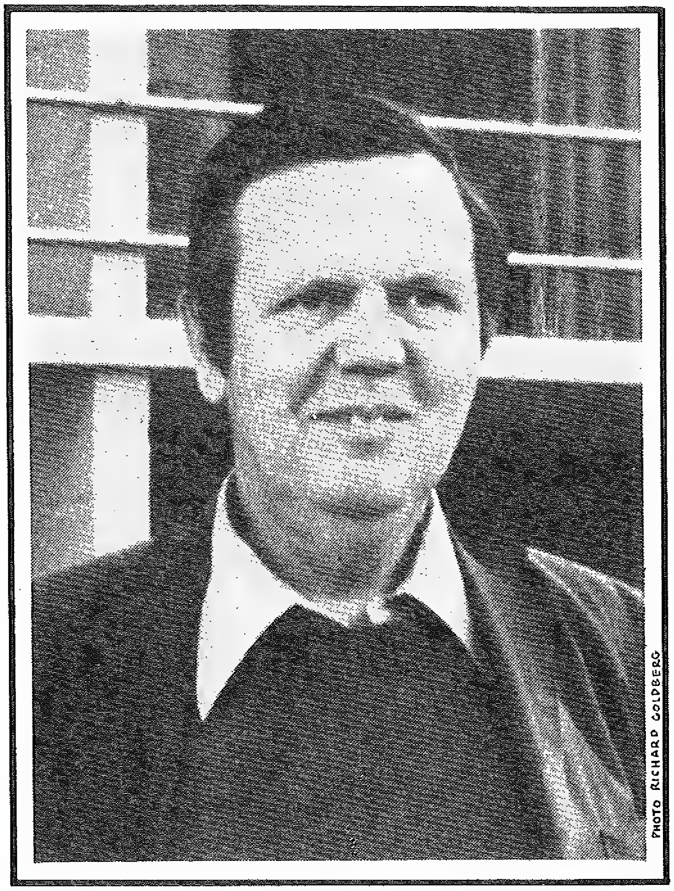
Sincerely

Bill Emerson

William K. Emerson
Curator of Mollusks
Department of Invertebrates

WKE/ajh

(NYSC NOTES 286.2)



WILLIAM ERWOOD OLD, Jr.

April 14, 1928 - December 31, 1982

WILLIAM ERWOOD OLD, Jr.

April 14, 1928 - December 31, 1982

The death of Bill Old was a stunning shock to his many friends and colleagues. Bill has been described as "a natural history prodigy" — and so he was. He was born, raised and educated in Norfolk, Virginia, where his interest in natural history developed at an early age. While in his teens he did volunteer work at the Smithsonian Institution, where he was encouraged by naturalist Austin H. Clark and William M. Mann, the director of the National Zoological Park.

He attended the College of William and Mary, Norfolk Division, in 1946-47, served with the United States Army in the Korean War, and again attended William and Mary, 1954-56. Just when mollusks became his major interest we do not know, but while in his 20's he had already assembled a collection and become very knowledgeable of the phylum.

In July of 1960 Bill left a mundane job in Virginia to join the staff of the American Museum of Natural History as "Museum Specialist" in the Department of Invertebrates. Through the years he progressed to become the department's highly valued Senior Scientific Assistant, and the reference collection of mollusks nearly tripled in size during his more than two decades as the collection manager. He had a tremendous knowledge of his subject, and a phenomenal memory with instant recall. Bill was a recognized authority on the family Conidae, but he generated equal enthusiasm for other groups — including Strombidae, Cypraeidae, and the Chitons, as well as fossils and terrestrial gastropods.

Among his hobbies was a keen interest in zoological gardens. This past summer he toured seventeen European zoos. He was a practicing horticulturist specializing in cactus and other succulents. His many cultural interests included literature, history, and classical music.

Bill was the author or co-author of some thirty-six scientific papers on molluscan subjects and he contributed numerous popular articles and book reviews to shell club journals. He assisted in the preparation of several guide books on mollusks, including the "American Museum of Natural History Guide to Shells," by Emerson and Jacobson, and the recently issued "Seashells of Oman," by Donald and Eloise Bosch.

Bill was always ready to help the amateur. He was friendly and interested. He lectured at shell club meetings and taught adult education classes at the museum. He judged shell shows all over the country. These activities were in addition to his regular duties. His extensive travels included field trips to the West Indies, the Galapagos Islands, Mexico, and Peru, and visits to study the collections of museums in England and Europe.

Bill was an active member of several Natural History organizations and served as president for the New York Shell Club (1963-65) and the American Malacological Union (1978-79). He was a positive influence in the field of malacology and his contributions will be long remembered.

As a memorial to Bill, the American Museum of Natural History has established the William E. Old Malacology Fund. Contributions to the Fund will be used to support the Department's malacology program, especially the collection, on which Bill worked with extreme dedication for more than twenty-two years.

Dorothy Raeihle and William K. Emerson
New York City, January 25, 1983

WILLIAM ERWOOD OLD, Jr.

R. Tucker Abbott writes from Melbourne, Florida:

> I first met Bill Old in 1946 (the year I came to the U. S. National Museum's Division of Mollusks). Bill was in his late teens and was making frequent visits to the Washington Zoo and the U. S. National Museum. Billy Mann, the Director of the Zoo, and Austin Clark, the Curator of Echinoderms (and of *Conus austini* and *C. clarki* fame) both took Bill under their wings and encouraged him in his pursuit of natural history. Bill collected butterflies near his home in Norfolk, Virginia, and sent them to Austin Clark. Later, while serving in the Army in Korea, Bill sent back reptiles to the zoo and shells to me at the National Museum.
>
> I was partially responsible for Bill going to the American Museum, where he proved his skills in malacology.

+ + +

From the literature:

One of the reptiles Bill sent back from Korea was named in his honor. The description by Harlan D. Walley, "A New Lacertid Lizard From Korea," was published in 1958 in *Herpetologica* vol. 14, pp. 203-205. The description begins:

> In a collection of reptiles and amphibians made by William E. Old, Jr. in Ch'ungeh'ong Pukto Province, southern Korea, during 1951, are two specimens of *Takydromus tachydromoides* (Schlegel) that apparently represent a distinct and undescribed subspecies. (and) I propose the new subspecies to be known as:
>
> TAKYDROMUS TACHYDROMOIDES OLDI new subsp.
>
> *Holotype*: U.S.N.M. 129618, adult female, from an abandoned building, Tajon, Korea, Jan. 1951; collected by William E. Old, Jr.
> *Paratypes*: Adult female, U.S.N.M. 129616, same locality as type.
> *Range*: Known only from type locality.

Bill's lizard is a little thing, only 109mm overall, with the tail making up slightly more than half its total length.

+ + +

Footnote:

Bill was always ready for some extra-curricular collecting. On one of his visits to a shell collector in Florida he spent his time chasing chameleons. When he visited Peru he took a day's holiday to join a tourist group to visit ancient ruins. It rained. While the rest of the tourists took shelter, Bill went about collecting land snails from the ancient walls — he knew that if any snails were there the rain would bring them out.

dr

+ + +

Anthony D'Attilio writes from San Diego, California:

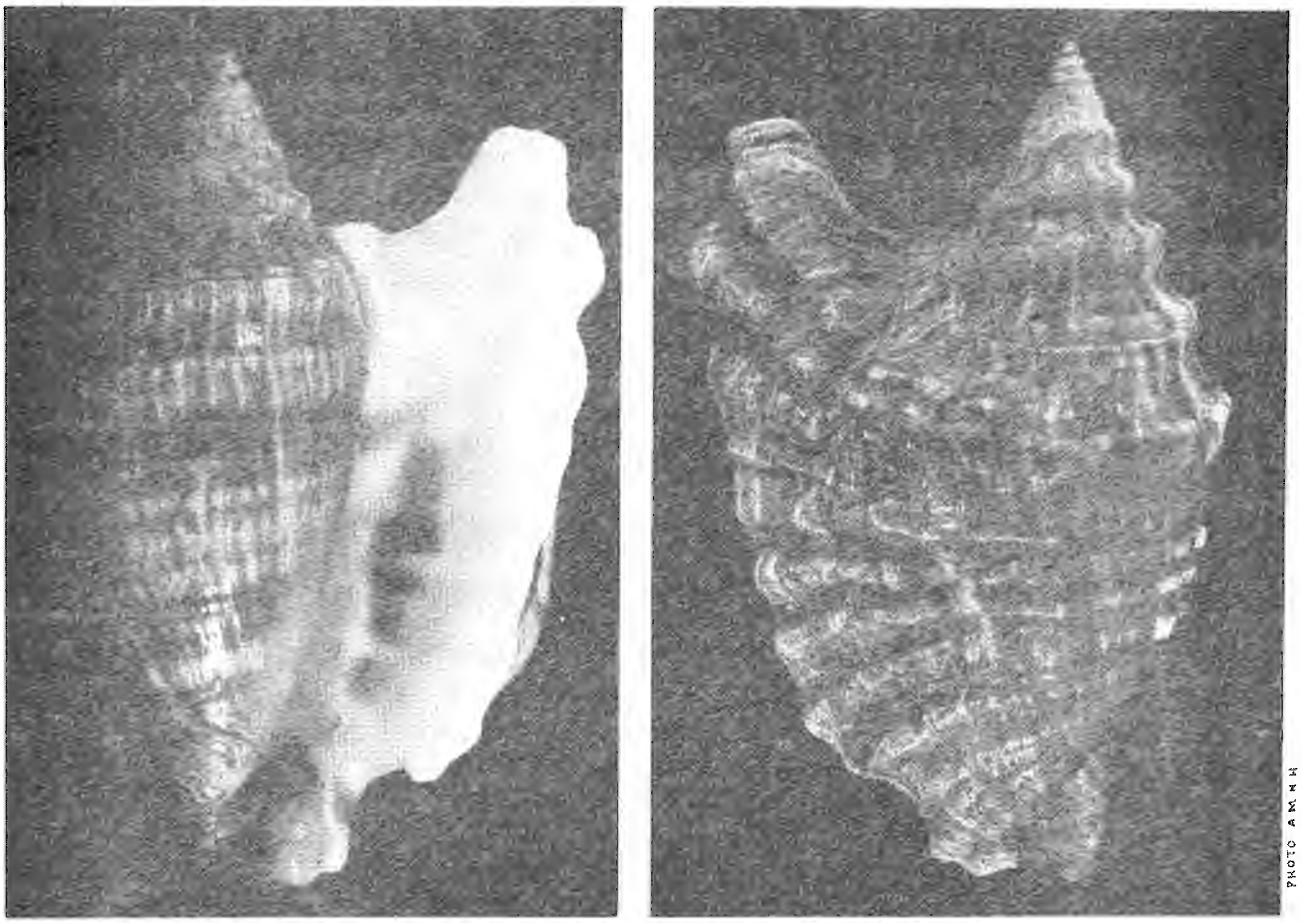
> Both Rose and I are sad indeed to hear from you that Bill Old has passed away. We had been good friends since about 1954-55 when Bill, recently out of the Korean conflict, came to New York to visit with us. I discovered that he was a very knowledgeable collector and student. A few years later, when he was being considered for employment at the American Museum of Natural History, I was happy to impart my good impressions.
>
> Through the years he worked at the American Museum, Bill did what I believe to be one of the finest types of curation. Every family or genus was extensively studied and then arranged by the latest or best method according to his ideas, and where specimens were lacking in the collection Bill inserted a good illustration.
>
> As you probably know, his real love as a student and collector was the Conidae. While I was still in New York he moved the Conus collection into his office where he worked at always enlarging and perfecting it. His extensive knowledge, however, made him wary about describing the many "new" Conus that made their way into collectors' hands in the last two decades.
>
> We collaborated on two papers only in all the time we knew each other. Our first was a note in the Veliger on the re-discovery of Conus telatus Reeve; the second was the description of Haustellum wilsoni D'Attilio and Old, also published in the Veliger.
>
> Last fall (1982) Bill and I served as judges for the Santa Barbara Shell Show, so I was able to spend a few days with him, chatting about other times — and shells. After the shell show Bill pursued his other great hobby of a lifetime and went off to visit zoos. His aim was to visit every zoo he possible could, both in this country and abroad.

+ + +

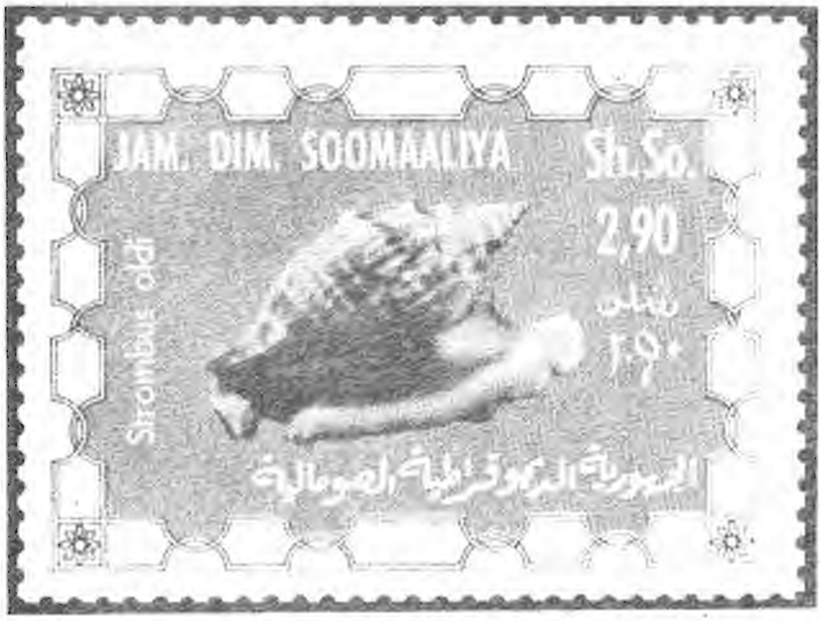
Bill joined the New York Shell Club in August of 1960. He was a very active member, serving as recording secretary (1961-63), as president (1963-65), giving presentations, contributing to these NOTES, acting as auctioneer at our annual auctions, sharing chores. He conducted several educational tours through the Department for shell club members. He gave valuable assistance at our club's first exhibit of shells, held at the Bergen County Museum in April, 1973, and again for "The Shell Weekend" in the American Museum of Natural History in November, 1981.

Bill was a member of the American Malacological Union and their president 1978-79; he was a charter member of the Western Society of Malacologists and of the Conchologists of America; he held honorary memberships in the Boston Malacological Club, in the Broward County, Northwest Pacific, and Sarasota Shell Clubs, and in the Miami Malacological Society.

D. Raeihle



STROMBUS (TRICORNIS) OLDI Emerson, 1965
Purchased in Mogadishu, Somalia, 1964 (AMNH 148055). Actual size.



Postage stamp of Somalia,
issued December 15, 1976.

The description of Strombus oldi was published in Indo-Pacific Mollusca 1(6): 397-398, April 30, 1965, by Dr. William K. Emerson, who wrote that "This very distinctive species ... was first brought to light by my associate, Mr. William E. Old, Jr., who was curating a small collection of marine mollusks from Somalia.

. . . .

I take pleasure in naming this new species in honor of Mr. Old, who immediately recognized the significance of his discovery."

WILLIAM ERWOOD OLD, Jr.

Born: Norfolk, Virginia, April 14, 1928.
Died: New York City, New York, December 31, 1982.

Education: College of William and Mary, Norfolk Division, 1946-47, 1954-56.

Positions: Twenty-two years with the American Museum of Natural History, Department of Invertebrates, Molluscan Section:
Museum Specialist, July 5, 1960 to June 30, 1965.
Senior Technician, July 1, 1965 to June 30, 1967.
Scientific Assistant, July 1, 1967 to September 30, 1981.
Senior Scientific Assistant, October 1, 1981 to December 31, 1982.

* * *

Recording Secretary, New York Shell Club, 1960-62.
President, New York Shell Club, 1963-65.
President, American Malacological Union, 1978-79.

NEW MOLLUSCAN TAXA DESCRIBED BY WILLIAM E. OLD, Jr.

Ximeniconus Emerson and Old, 1962 (a subgenus of *Conus*).
Lotoria Emerson and Old, 1963 (a subgenus of *Cymatium*).
Cymatium perryi Emerson and Old, 1963.
Scalptia mercadoi Old, 1968.
Haustellum wilsoni D'Attilio and Old, 1971.
Conus vicweei Old, 1973.
Scaphella contoyensis Emerson and Old, 1979.

SPECIES DESCRIBED IN HONOR OF WILLIAM E. OLD, Jr.

Takydromus tachydromoides oldi Walley, 1958 (a lizard).
Strombus oldi Emerson, 1965.

SCIENTIFIC PUBLICATIONS
William E. Old, Jr.

1956 (and Roger H. Rageot) "Land snails of Nansemond, Norfolk, and Princess Anne Counties, Virginia." Virginia Jour. Sci. 7(2): 87-90.

1962 (with William K. Emerson) "Results of the Puritan-American Museum of Natural History Expedition to Western Mexico. 16. The Recent mollusks: Gastropoda, Conidae." Amer. Mus. Novitates No. 2112, 44 pp., 20 figs.

"Cypraea (Blasicrura) coxeni Cox." The Cowry 1(4): 52-56, pls. 6, 7.

1963 "What is Cypraea arabica niger Roberts?" (Abstract) Amer. Malac. Union Ann. Reports 1962: 13.

(with William K. Emerson) "Remarks on Cassis (Casmaria) vibexmexicana." Nautilus 76(4): 143-145, pl. 10.

(with William K. Emerson) "Results of the Puritan-American Museum of Natural History Expedition to Western Mexico. 17. The Recent mollusks: Gastropoda, Cypraeacea." Amer. Mus. Novitates No. 2136, 32 pp., 18 figs.

(with William K. Emerson) "A new subgenus and species of Cymatium (Mollusca, Gastropoda)." Amer. Mus. Novitates, No. 2137, 13 pp., 6 figs.

"Cowries from the Lesser Sunda Islands." Treubia 26, pt. 2: 71, 72.

"Cypraea latior Melvill, 1888." Hawaiian Shell News 12(2): 4, 6 figs.

(and Anthony D'Attilio) "Remarks on Conus telatus Reeve (Mollusca: Gastropoda)." Veliger 6(2): 60-61, figs. 1-3.

(with William K. Emerson) "Results of the Puritan-American Museum of Natural History Expedition to Western Mexico. 19. The Recent mollusks: Gastropoda, Strombacea, Tonnacea, and Cymatiacea." Amer. Mus. Novitates No. 2153, 38 pp., 28 figs.

1964 (with William K. Emerson) "Additional records from Cocos Island." Nautilus 77(3): 90-92.

"Status of Cypraea arabica niger." The Cowry 1(7): 97-99, figs. 1-6.

1965 "Comments on Thais (Tribulus) planospira." (Abstract) Amer. Malac. Union Ann. Reports 1964: 47-48.

(with William K. Emerson) "New molluscan records for the Galapagos Islands." Nautilus 78(4): 116-120.

"On the identity of Conus pastinaca Lamarck." Nautilus 79 (1): 23-26, 2 figs.

(with William K. Emerson) "Additional records for Cypraea surinamensis Perry." Nautilus 79(1): 26-30, pl. 3.

1966 (with William K. Emerson) "Cypraea (Propustularia) surinamensis Perry from Brazil." Nautilus 80(2):70-71.

(with William K. Emerson) "Additional records for Strombus oldi." Hawaiian Shell News 14(13): 7, 1 fig.

"Comments on Conus gloriamaris." Hawaiian Shell News 14(9): 4-5, 7; 6 figs.

1967 (with Morris K. Jacobson) "On the identity of Spisula similis (Say)." Amer. Malac. Union Ann. Reports 1966: 30-31.

1968 "A remarkable new Cancellariid from the Philippines, with comments on other taxa." Veliger 10(3): 286-289, pl. 43, 2 figs.

(with William K. Emerson) "An additional record for Cypraea teres in the Galapagos Islands." Veliger 11(2): 98-99, pl. 12.

1970 "New and otherwise interesting mollusks from Brazil." The Echo, No. 2, pp. 20-21.

1971 (with Anthony D'Attilio) "A new muricid gastropod from Western Australia." Veliger 13(4): 316-318, 3 figs.

1972 (with William K. Emerson) "On the identity of Murex phyllopterus Lamarck, 1822. A tropical Western Atlantic species (Gastropoda: Prosobranchia)." Veliger 14(4): 350-354, 13 figs.

1973 "A new species of Conus from Indonesian waters." Veliger 16(1): 58-60, 2 pls.

"The Conus sulcatus complex." Hawaiian Shell News 21(10): 6-7, 13 figs.

1974 (with Morris K. Jacobson) "On a sinistral specimen of Liguus virgineus (with additional remarks on the genus Liguus)." Nautilus 88(1): 28-29, 2 figs.

1975 "Conus Corner: Conus malaccanus, C. bayani, and C. urashimanus." Hawaiian Shell News 22(11): 5, 6 figs.

1976 "Living Conus from the New World, with special reference to 'twin species'." Bull. Amer. Malac. Union 1975: 52.

1978 "Interesting white Conus from Brazil." The Shell Collector, premier no., pp. 20-22, 2 figs.

1979 "Chitons collected by the Ameripagos Expedition to the Galapagos Islands." (Abstract) Bull. Amer. Malac. Union 1978: 64. Ann. Report Western Soc. Malacologists 11: 10.

(with William K. Emerson) "Scaphella contoyensis, a new volutid (Gastropoda) from east Mexico." Nautilus 93(1): 10-14, 7 figs.

1981 (with William K. Emerson) "Bibliography of Morris K. Jacobson." Bull. Amer. Malac. Union 1980: iii-v.

BOOKS

Assisted in the preparation of guide books on mollusks including:

The American Museum of Natural History Guide to Shells, by Emerson and Jacobson, 1976.

A Collector's Guide to Seashells of the World, by Eisenberg, 1981.

Seashells of Oman, by Bosch and Bosch, 1982.

Of other works: contributed to Wagner and Abbott's Standard Catalog.

POPULAR WRITINGS

Articles, review and reports totalling forty in number were published in the New York Shell Club Notes 1961-1982. A few more were published in Hawaiian Shell News, Shells and Their Neighbors, and in other periodicals.

NEW YORK SHELL CLUB ANNUAL SOCIAL AND AUCTION

THE DATE: SUNDAY, APRIL 10th, 1983

THE TIME: Festivities will begin at 2:00 pm.
Doors will open at 1:00 pm so that donations and supplies may be brought in and arranged.

THE PLACE: BROADWAY DANCE STUDIO (Directions below.)
31-08 BROADWAY
ASTORIA, QUEENS (Phone 212:274-1503)

DONATION AT THE DOOR: $2.00 per person, members and their guests.

AUCTION - BARGAIN TABLE - RAFFLE - DOOR PRIZE(S)

WINE + CHEESE + SNACKS + PUNCH + MUNCHIES + COFFEE + CAKE

MATERIAL IS NEEDED FOR OUR AUCTION, AND FOR THE BARGAIN TABLE

Please scout your shelves and cabinets, your attics and garages, your cupboards and closets, for your duplicate and "no-longer-interested-in" good quality specimens plus any shell-related material — from books to dredges — that you'd like to pass along. There is no time like the present to house-clean your cabinets and boxes and clear out those extra gloriamaris and bengalensis (for instance) that you never look at and are only taking up room, plus old stuff (such as fossils). We'll welcome it all. Material may be sent to our president, Fred Cannon, or brought directly to the party. His address: Mr. Fred Cannon, 242 Warren Street, Brooklyn, N. Y. 11201. If your material is too much to carry, call Fred for help — phone 212: 852-1765, and he'll find a way.

We make one more plea: Will our famous pastry chefs please bring their homemade cakes and cookies to give us a delicious finale to the afternoon?

The $2.00 donation at the door goes toward rentals and supplies; the use of the studio has again been graciously donated by our member Dorothy Jensen.

For many years Bill Old was a mainstay of our auctions. It is proposed to use profits of this year's affair for a memorial to him.

DIRECTIONS: The studio is on the second floor of the building, SW corner of Broadway and 31st Street. From Manhattan: B.M.T. ASTORIA line to BROADWAY, or I.R.T. FLUSHING line to QUEENSBORO PLAZA and transfer to the B.M.T. ASTORIA line thence to BROADWAY. Travelling from Jamaica: IND to ROOSEVELT AVENUE, transfer to I.R.T. FLUSHING line to QUEENSBORO PLAZA, transfer again to B.M.T. ASTORIA train. BY CAR: QUEENSBORO BRIDGE to NORTHERN BOULEVARD to 31st Street, left on 31st Street (under the Elevated) to Broadway. Or: TRIBORO BRIDGE to the first exit in Queens, turn right under the Elevated along 31st Street to Broadway. From LONG ISLAND: GRAND CENTRAL PARKWAY to the last exit before the Triboro Bridge, go a short distance along Astoria Boulevard to 31st Street, turn left under the Elevated to Broadway — about six blocks.

REVIEW:

COMPENDIUM OF SEASHELLS

by R. Tucker Abbott and S. Peter Dance. 410 pp. + ix, 4200 color photographs, taxonomic classification and bibliography, brief index to common names, extensive index to scientific names. 8 5/8 x 11", hardbound, E. P. Dutton Co., Inc. 1982. Price $50 plus $1.50 postage. Order from American Malacologists, Inc., P.O. Box 2255, Melbourne, Florida 32901. (See "Compendium News" below.)

This COMPENDIUM OF SEASHELLS is a beautiful book. As the authors write: "Intended primarily for the amateur shell collector, our book also serves the scientific community. It contains photographs of several hundreds of type specimens from museums and private collections, those unique specimens to which scientists must refer when the exact identity of a species must be established." ... "The photographs and the brief accompanying texts provide a quick guide to those marine species the amateur conchologist is most likely to encounter while doing field work, exchanging, or purchasing from commercial sources."

In the section "Taxonomic Classification — Bibliography" (pp. 379-390), the bibliography is arranged within the classification outline so that literature pertaining to a particular family is readily found, and is most useful for further study.

The species are arranged by families and geographical regions. In the section on Conidae (with 334 photographs) the geographical regions are also noted in the upper margins of the pages, very helpful in locating quickly the pages you are looking for. We checked all the cones and found only one photo that had strayed out of its region: the lovely Conus boschi Clover, 1972 from the Oman coast is illustrated on page 271 with cones of the Panamic region.

The photographs are excellent, with but a small percentage lacking brilliance and rather dark for identification purposes.

It is amazing how much information is crowded into the brief texts under each photograph — common name, size, scientific name with author and date, area, habitat, common, uncommon or rare, important synonyms, occasional remarks. For example, on page 268: "Sozon's Cone (3") 7.5 cm Conus delessertii Recluz, 1843. S.E. United States. Offshore reefs; uncommon. Syn. sozoni Bartsch."

The section on bivalves will help you identify "strangers" and is most welcome. Of the thousand or more photographs, most picture both right and left valves and hinge structure.

Dorothy and George Raeihle

COMPENDIUM NEWS

In February we are offering Compendium of Seashells by Abbott and Dance to Shell Club members at a greatly reduced price, namely $39.00. These books will not come autographed. The books must be ordered in batches of 10 ($390.00, plus $8.00 postage). A single payment should be made to "American Malacologists, Inc.", P.O. Box 2255, Melbourne, FL 32901. For UPS delivery give a street address.

Copies autographed by both authors, with a personal bookplate, are still available for $51.50 (postage paid).

REVIEW

SUPPLEMENT 2
Wagner and Abbott's
STANDARD CATALOG OF SHELLS (THIRD EDITION)

Complete species and generic catalogs of six major families, a revision of 1200 World Size Records, and an index to Genera and subgenera. With seven new guide tabs. Fits into your present binder.

Families covered in this second supplement are: Coralliophilidae (*Latiaxis*, *Magilus*, *Rapa*); Triviidae; Ovulidae; Nassariidae (W. O. Cernohorsky, about 2,600 names); Glycymerididae (650 names); Spondylidae (250 names).

120 pages, illustrated. Price: $13.00 plus $1.00 postage (foreign postage $1.50. American Malacologists, Inc., P.O. Box 2255, Melbourne, Florida 32901.

The third edition of "Standard Catalog" (1977) and the first supplement (1978) were offered together at the time of publication for $40.00; they contained thousands of listings in seventeen families (see review in NOTES 247.5). Supplement 2 (1982) contains about 4,300 listings in the above noted six families plus the revision of size records and the generic and subgeneric index. Excellent line drawings illustrate 96 species, including 38 in Nassariidae and 29 in Ovulidae.

Those of you who have the third edition of "Catalog" with the first supplement will automatically order the second supplement. Those of you who do not have the earlier publications may find them still available from American Malacologist, Inc. (address above).

Those who collect worldwide shells by exchange and from dealers should find the "Catalog" most useful in checking synonymies. For instance: Did you know that there are 34 synonyms listed for *Murex brandaris*, over 30 synonyms for *Murex trunculus*, and 33 for *Cypraea lurida*? Such information is essential whether one wishes to collect only one typical specimen or desires a number of forms.

Corrections and additions were included with the first supplement and will undoubtedly be forthcoming in due time for the second supplement.

Dorothy Raeihle

SHELL SHOW DATES

March 3 - 6	Sanibel-Captiva Shell Club,	at the Community Center.
March 4 - 6	Central Florida, Orlando	at the First Methodist Church, Downton.
March 11 - 13	Georgia Club, Atlanta	
July 29 - 31	Jacksonville Shell Club	at the Flag Pavillion, Jacksonville Beach.
mid-August	Indianapolis Shell Club	
November 4 - 6	Astronaut Trail Shell Club	Kiwanis Island, Merritt Island.

(From THE LITTORINA 8(1): 3 and JAX SHELL-O-GRAM *23*(11): 8)

HIGHLIGHTS OF THE NOVEMBER MEETING

The shells in the display case were cowries from the Museum collection, selected by Bill Old. Two were Cypraea tigris - one strongly tinged with red and the other marked with stripes that actually resemble a tiger's markings. Bill had chosen other specimens to illustrate several incidents that he related, brought about by misidentification based on inadequate photographs in identification books, newspaper stories on "rare" shells, etc. The picture of hesitata in the Webb book, for example, made at least one woman sure that her Ovula ovum was a "$40 shell." In another example, there was sharp disappointment when a "Cypraea leucodon" turned out to be a sub-adult mauritiana.

Bella Kudatsky announced that she would like to sell her books on shells. President Fred Cannon noted that our December speaker, Jane Safer, has written a book titled "Spirals of the Sea." He added that it was the Museum that suggested to him that we might invite her to address the Club.

Mansfield Fuldner stated that the decision to issue NYSC NOTES four times a year was made at a poorly attended meeting. After discussion, he made a motion that the entire membership be canvassed for a final decision. A show of hands defeated the motion, 8 to 10.

Our guest speaker was Jerry Harasewych, of the Delaware Nuseum of Natural History. He outlined his recent work with the family Columbariidae, noting that it is not heavily represented in collections, being a group of small shells that do not live in shallow water. He noted that Martens, in 1881, was the first to recognize the members of the family as a distinct group. They were considered turrids into the 20th century. Tomlin erected a separate family in 1928, and it was later moved (for the second time) into the Muricidae. At one time it had been placed in Fasciolaridae. Jerry will assign the group to Turbinellidae. There are about 40 species.

Jerry had only one preserved anatomical specimen to work with. He microtomed it, making 85 slides that became the basis of anatomical drawings - the first detailed examination undertaken. He found the spicules of tubeworms in the gut. He showed, in slides, scanning electron microscope views of the radula, some of the drawings, and a number of close-ups of the attractive shells.

Milton Werner, Recording Secretary

HIGHLIGHTS OF THE JANUARY MEETING

The meeting on Sunday, January 9th, 1983 was the 34th anniversary meeting of the New York Shell Club.

There was no meeting in December because the snow storm kept all but six members from coming out. The guest speaker, Jane Safer, agreed to appear at a meeting in the near future.

President Fred Cannon announced the death, on December 31st, of Bill Old. He asked for a minute of silence, which was observed.

Fred noted that, since only one issue of the NOTES would be published before April, some decisions should be made about the social meeting. Noting that the format of the 1982 social meeting had been successful, Fred, with informal approval, said the format would be repeated. He added the reminder that auction material will be needed.

Fred then asked that we consider donating the auction profit to a memorial for Bill. Several suggestions were made as to the type of memorial, but none was seen as practical. Action on the matter will be deferred for further consideration.

The speaker was John Bockelmann, who described separate collecting trips - to the Galapagos, and to the Tuamotu island group. The Galapagos trip was made as a member of a tour group. John showed a number of slide photos he had made of the animals and birds of the islands. He noted that there is a limit of 12,000 tourists per year, and that shelling, live and beach, is prohibited. Traveling alone to the Tuamotus, he made stops at Bora Bora, Manihi, Tahiti and Papeete. Collecting at several points, he found, and showed slides of, _Cypraea ventriculus_, _isabella_, _helvola_, _ovata_ and _nucleus_, _Conus miles_, _lividus_, _boreas_, _pulcarius_, and _pulchra_, _Cantharus undosus_, _Cymatium nicobaricum_, _Haliotis pulcherrima_, _Tridacna maximus_, _Vasum ceramicum_, a _Bursa_ and a _Morula_.

Fred drew attention to a letter from the Jacksonville Shell Club, offering the loan of a slide show for which we have to pay only the postage. In response to a strong show of interest, he said he will make the request.

Milton Werner, Recording Secretary

KATHERINE VAN WINKLE PALMER

We regret to report the death, on September 12, 1982, of Katherine Van Winkle Palmer, at age 87. Dr. Palmer was a member of the New York Shell Club since its early months. She was active in the American Malacological Union, serving as president in 1960, in the American Association for the Advancement of Science, where she was an honorary life member, and several other organizations in the field of geology and paleontology. She was associated with the Paleontological Research Institution of Ithaca, New York, since the early 1930's and served as the Institution's director from 1951 until her retirement. She was the widow of Dr. E. Lawrence Palmer, naturalist, of Cornell University at Ithaca.

As a paleontologist and paleoconcholigist Katherine ("Rip") Palmer made many constructive contributions to her field of science. But what we remember first is her out-going personality that encouraged so many friendships.

Dorothy Raeihle

Announcement:

LATIAXIS CATALOG

& Illustrated Check List of Coralliophilidae Family. by Phillip W. Clover. 40 pages of text on 350 illustrations, covering 310 species. (1982) Price $10.00 postpaid in U.S.A. and Europe by first class mail, or $11.00 air mail to other countries. Discounts available on quantities of five or more copies.

Available from Phillip W. Clover, P.O. Box 83, Glen Ellen, CA 95442.

ACCOMPLISHMENTS IN LOCAL CONSERVATION

In July (1982), Governor Hugh Carey signed a bill designating the Nissequoque River as part of New York's Wild, Scenic and Recreational River System. Located on Long Island within the town of Smithtown, nearly eight miles of the Nissequogue River are now protected and preserved in a "natural, free-flowing condition." No dams or structures may interrupt its flow, and land uses may not conflict with the regulations governing the scenic and recreational classifications under which the river is to be managed by the Department of Environmental Conservation.

The river corridor offers wonderful diversity as it flows through varied ecosystems such as freshwater springs, dune lands and tidal wetlands. Most of the 5,300 acres of the area are publicly owned, creating an ideal recreational environment. Due to its steep banks and high vegetation, most of the residential development on its banks is not visible from the river. Existing lots and subdivisions will remain as they are, but future land use will be determined locally, within the guidelines to be set by DEC.

A management plan will now be prepared by DEC in cooperation with all state and local agencies and landowners and interested citizens. The goal will be to upgrade areas of the corridor in need of improvement and to protect and preserve the river's unique historic and environmental qualities.

Sophie Morris in: New York State
ENVIRONMENT 11(13/14): 17

Using state Environmental Quality Bond Act funds, DEC recently acquired the 35-acre Stillman Creek wetland, located on the shore of Great South Bay, near the hamlet of Blue Point in the town of Brookhaven. It was acquired in 15 parcels from 14 landowners. DEC's appraised value for the property is $220,250.

Stillman Creek runs through the center of the property into the bay. A berm lies across the mouth of the creek, which receives a restricted tidal flow through two pipes under the berm. The wetland is sometimes flooded by storm tides which exceed the berm's height.

Public access to the entire wetland will be from the beach area. Permitted activities are likely to include trapping, fishing, clamming, bird watching and nature study. No hunting will be allowed in the area because of the close proximity of private homes.

The Stillman Creek wetland provides habitat for a variety of wading birds, shorebirds, and waterfowl. Species include egrets and mallards. Muskrats and rabbits are common in the marsh. Because of its restricted flow, the creek itself is populated chiefly with bait fish, such as killifish, stickleback, and spearing.

The tidal marsh is particularly important to the life cycle of Great South Bay's important shellfish and finfish resources. The wetland further protects shellfish beds in the bay by acting as a sink for pollutants in surface water runoff, which would otherwise enter the bay.

Sophie Morris
Ibid. 11(15/16): 17 Dec. 1982

CONCH SHORTAGE SPURS REPLENISHMENT EFFORTS

(From a story in The Wall Street Journal, January 10, 1983)

The Queen Conch (Strombus gigas), whose meat has always been a staple of diet throughout the Caribbean area, is getting harder to come by. Commercial fishermen, sometimes using diving gear, have stripped many of the mollusk's shallow-water habitats to supply the large United States demand for conch meat. Imports at Miami over the last decade have run about a million pounds a year — at four conchs per pound. (Much of the American market represents immigrants from Caribbean countries; there may be a vicious circle operating as islanders who formerly could obtain an important part of their food from the sea at no cost now find it harder to make ends meet and decide to migrate to the mainland. – Ed. note, EFC)

An example of the effect of overharvesting is the 80%-plus reduction in Belize's exports of conch to the United States between 1972 and 1981. In an effort to restore conch to its former economic niche (it was second only to spiny lobster as a valuable fishery resource), Belize has set up a Conch Optimisation Project. Mexico and Puerto Rico also have established conch-raising programs.

Research by Scott Siddall and Edwin Iverson, marine biologists at the University of Miami, financed by the Wallace Groves Aquaculture Foundation in Freeport, Bahamas, has indicated feasibility of breeding conchs in hatcheries and letting them grow for five months (they eat algae) before restocking the one-inch animals in natural habitats. Full growth takes two and a half years or more. (See NYSC NOTES 273.8,9.) PRIDE (Protection of Reefs and Islands from Degradation and Exploitation), another foundation, started such a project in 1981, and it is hoped that other private and governmental organizations will institute similar efforts.

Edward F. Cowles

AT THE AMERICAN MUSEUM

EXPLORING THE DEEP FRONTIER, a new exhibition opened in the Museum's Roosevelt Rotunda January 18th. The sea has often been called the "last frontier," and this exhibition focuses on efforts to explore, research, and understand the ocean depths. Diving equipment, marine specimens, and underwater photographs are on display; short underwater film clips are also offered.

NATURAL HISTORY 92(1): 24

THE UNDERWATER WORLD OF EUGENIE CLARK is a special Wednesday evening program sponsored by the American Littoral Society at the American Museum of Natural History in New York, Wednesday, March 2, from 7:30 - 9:30 pm. Dr. Clark, a Society vice president, will show and narrate films and slides of her underwater work in the Caribbean, the Red Sea, and the Pacific, and show a new film, "Sharks for Children."

Write for order forms for tickets ($6.00 per person) to the American Littoral Society, Sandy Hook, Highlands, New Jersey 07732, or call for information, 201: 291-0055.

Chapter News, American Littoral Soc.

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1983 N.Y.S.C. MEMBERSHIP DAYS

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The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 426, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, JUNE 12, 1983, at 2:00 p.m.

PROGRAM: ANNUAL ELECTIONS

SHELLING IN THE FIJI AREA
by Theta Lourbacos

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THE PRESIDENT'S REPORT ON THE SOCIAL

I thank *everybody* for their support: Club members, Long Island Shell Club members, guests — and appreciate that so many stalwarts braved the downpour to attend. The stream of wonderful donations brought to the meeting — of shells, of food, of various items — were most important in making the affair a real party.

With all your help and enthusiasm you made it possible for the afternoon's net profits to amount to a very substantial sum to be donated to the William E. Old Malacology Fund.

As in past years, Mrs. Waverley Harmon, Nick Katsaras, Bob Janowsky, Sol Weiss and Al Scarpetti were major donors, as were Richard Goldberg, John Bockelmann and David Luchow. (President Cannon was also a major donor, but was too modest to include his name. Please forgive any omissions; we can report only the information we receive. -Ed.)

Auctioneer Bob Janowsky's expertise made things move, and the auction was a great financial success. Also, many checks were sent in to swell the sum for the William E. Old Malacology Fund.

A special thanks (again) to Dorothy Jensen for the use of her dance studio, and to 'Mike' Werner and Frank Nelson for their time and labor in setting up.

Fred Cannon

HIGHLIGHTS OF THE MARCH MEETING

President Fred Cannon noted that only Nick Katsaras had come to the Museum in February. Because of the "Blizzard of '83" Fred decided to cancel the February meeting, but had not been able to reach Nick by telephone.

Fred noted that the next meeting will be the social meeting, and that the only donation of shells so far are some from Waverley Harmon. The announcement was followed by numerous offers of shells, food, and labor.

The speaker was Jane Safer, Senior Research Associate with the Institute for the Study of Human Issues, at the American Museum of Natural History. Her talk was based on her book, "Spirals of the Sea," which describes the "Mollusks and Man" exhibit at the Museum. She noted that the creation of this hall required four years of research, and that the exhibit was the result of cooperative effort by the Anthropology, Mollusks, and Exhibition Department. Mrs. Safer, as an anthropologist, was interested to know how different societies thought about shells. She found that there was not much in books about their use, and eventually arrived at many of her conclusions through considerable detective work. She showed slide photographs of a number of items in the exhibit, pointing out the symbolic significance of the shells in some, and their utility in others. The meeting was formally adjourned at 4:03 p.m., and reconvened in the "Mollusks and Man" hall, where Mrs. Safer continued her remarks and answered a number of questions.

Milton Werner, Recording Sec'y

HIGHLIGHTS OF THE APRIL MEETING

The April meeting of the New York Shell Club was an annual social meeting, held at the Broadway Dance Studio, Astoria, Queens. The attendance was 41 members and guests in spite of the hard rain.

The major event of the day was an auction of donated shells and related material. The $2.00 admission charge included a door-prize ticket and wine, punch, cheese, cold cuts, crackers and other snacks, and homemade cakes and coffee.

Auctioneer Bob Janowsky was assisted by Sol Weiss and David Luchow. The outstanding auction items and the prices they brought were: *Lyria lyraeformis*, $120; *Conus archithallasus*, $50; *Murex spectrum*, $46; *Conus kintoki*, $27; *Voluta aulica cathcartiae*, $26; *Voluta abyssicola*, $24; *Lyria planicosta*, $24. A tray of many shells and other marine specimens, arranged in a shallow wooden box, very old and apparently handmade, brought $45.

The two door prizes were: (1) a *Voluta imperialis*, and (2) copies of the July '49 National Geographic Magazine and "Kingdom of the Octopus." There was also a raffle, the prize a copy of "Compendium of Seashells," by Abbott and Dance.

Lee and Frank Nelson handled trade at the sale table.

Milton Werner, Recording Sec'y

BLAINE HUNTER

We regret to report the death in Virginia on April 23rd of Captain Blaine Hunter, USN Ret., at age 89. He had been in declining health for the last years.

The Hunters joined the New York Shell Club many years ago. They were then resident in Hackensack, New Jersey where they lived until their move five years ago to Chesapeake, Virginia.

Our deepest sympathy is extended to his wife, Anne.

DR. RUDOLF STOHLER RETIRES AFTER 25 YEARS

With the completion of Volume 25, this April, our friend and member Rudolf Stohler retires as editor and founder of THE VELIGER. What he began as a small mimeographed publication of 40 pages in Volume 1 has become one of the foremost malacological journals worldwide.

Dr. Stohler's accomplishment is an inspiration to all of us and we applaud him. To Dr. David W. Phillips, who will succeed him as editor beginning with Volume 26, no. 1, we offer our best wishes.

From: FESTIVUS XV(4):44, April 1983,
publication of the San Diego Shell Club.

We wish Dr. Stohler a happy retirement.

AMU AUGUST 7-13

The 49th annual meeting of the American Malacological Union will be held August 7-13 in Seattle, hosted by the Pacific Northwest Shell Club and the University of Washington's Department of Zoology. Housing and meetings will be in McCarthy Hall on the University campus. We will dine in adjacent Haggett Hall, overlooking Lake Washington. The double occupancy rate, including breakfast and luncheon, will be $25 per person. Family facilities and parking are available; there are also hotels and motels within walking distance of the meeting site.

An exciting meeting is being planned, starting with a buffet and reception Sunday evening, August 7. The meeting week coincides with a good low tide series, and marine as well as terrestrial and fossil field trips are being scheduled. An auction of malacobilia will benefit our newly established Symposium Endowment Fund. For the annual banquet, a cruise ship will take us from the University campus through the Lake Washington ship canal locks to an island in Puget Sound for a Northwest Indian style salmon barbecue. We hope to arrange an optional weekend field trip to the Friday Harbor Laboratories on San Juan Island.

The more serious aspects of the 1983 meeting will feature symposia in two areas of molluscan studies. The first is the significant contributions that the study of molluscs have made to medicine and physiology. Another area is molluscs of the past, and what the fossil record can teach us about the history of life.

The Western Society of Malacologists will meet with AMU this year. They will present a symposium on 'avian molluscivores,' birds that collect shells and dine on their contents. Other events being planned include a workshop on malacological publications, both professional and non-professional, and reports on cephalopods and Pacific Northwest marine mollusks.

Alan J. Kohn,
President, AMU

Department of Zoology, NJ-15
University of Washington
Seattle, Washington 98195

From: The American Malacological Union Newsletter, Vol. 13, No. 2.

C.O.A. CONVENTION SEPTEMBER 21 - 25

Headquarters for the eleventh annual convention of the Conchologists of America will be the Holiday Inn on Lido Beach in Sarasota, Florida. The meeting will be hosted by the Sarasota Shell Club. A fine program is planned along with some interesting field trips.

For further information you may write to:

R. W. Forbush, Convention Chairman
1104 Sklar Drive East
Venice, Florida 33595

FIRST INTERNATIONAL CONGRESS ON PALEOECOLOGY

July 18-23, 1983 at the Université Claude Bernard, Lyon 1, France.

Topics: Methods of Paleoecology; Paleoecology and fossil sites; Paleoecology and important questions of life and earth sciences.

Languages: French and English.

For further information: Secrétariat Général du 1er Congrès International de Paléoécologie, Universite Claude Bernard - Lyon 1, Dept. des Sciences de la Terre, 27-43 Boulevard du 11 Novembre, F-69622 Villeurbanne.

UNITAS MALACOLOGICA

The Eighth International Malacological Congress will be held August 29 - September 3, 1983, in Budapest, Hungary.

Topics: The Congress is open to any topic of malacology (recent and fossil). Furthermore, in case of sufficient number of people, we organize Colloquia in the following subjects:
(1) Quaternary malacology and fauna genesis.

(2) Non-marine mollusc biogeography.
(3) Sphaeriidae.
We organize meetings for the EIS and for museum curators, also the General Assembly of the UM.

Languages: English, French and German.

Preceding, during and after the Congress we shall organize collecting tours and excursions.

Further information may be obtained from the President of the Organizing Committee: Lászlo Pintér, Hungarian Natural History Museum, Budapest, Baross u. 13, H-1088 Hungary.

V CONGRESS OF THE FRENCH MALACOLOGICAL SOCIETY AND ITALIAN-FRENCH-SPANISH SYMPOSIUM: "MEDITERRANEAN CONCHYLICULTURE."

September 5-10, 1983, at the Ile des Embiez (Var), France.

Languages: French, English, Italian, Spanish.

Publication: Haliotis Vol. 13.

More information may be obtained from the secretary of the Congress: Fondation Oceanographique Ricard, Ile des Embiez, 83140 six-fours, France.

Announcements of International Malacological Congresses from LEVANTINA No. 38, pub. Israel Malacological Soc.

SHELL SHOW DATES

July 29-31:	Jacksonville, Florida, Shell Club will hold their shell show at the Flag Pavilion on Jacksonville Beach.
September 24-25:	The Crown Point Shell Collectors' Study Group will hold their 1983 shell show at the Southlake Mall in Merrillville, Indiana. For further information, address the club at Box 462, Crown Point, Indiana 46410.
October 1-2:	The Philadelphia Shell Club is planning their first shell show for October 1st and 2nd, 1983. It will be held at the Great Hall, Creese Building, Drexel University, 32nd and Chestnut Streets, Philadelphia.
October 22-23:	The annual West Coast Shell Show will be held Saturday and Sunday, October 22 and 23, 9 a.m. to 5 p.m. at the Fleishmann Auditorium of the Santa Barbara Museum of Natural History, 2559 Puesta del Sol Rd. Participation is open to all shell collectors. For further information and entry forms, write to: Show Committee, P.O. Box 30191, Santa Barbara, California 93105.
November 4-6:	Astronaut Trail Shell Club at Kiwanis Island, Merritt Island. (P.O. Box 515 EG. Melbourne FL. 32935)

REVIEWS:

SEA SHELLS OF SOUTHERN AFRICA

by Richard Kilburn and Elizabeth Rippey. Macmillan South Africa Ltd., Johannesburg. 1982. 249 pp., 46 color paintings. $49.95.

A need has long existed for an authoritative guide to South Africa's unique molluscan fauna. This volume, likened by R. Tucker Abbott to Keen's "Seashells of Tropical West America" and Kay's "Hawaiian Marine Shells," attempts to begin to fill this void. The authors state that present knowledge prevents inclusion of the perhaps 3,000 species of mollusks in this region, and have wisely chosen to restrict their coverage to 600 of the larger species of the littoral species of marine mollusks of South Africa, omitting the smaller, more scarce, or shell-less littoral forms and those (with the exception of a selection of deep-water species) not found living or dead on the shore. This guide will therefore provide the collector with clear illustrations and concise descriptions of most of the South African sea shells likely to be obtained, and of course many of these will also be living in the Indo-Pacific region.

The authors have provided 14 pages of background information for the reader, including molluscan classification, how to build and care for a collection, pioneer South African collectors, and the South African molluscan province. The bulk of the book is taken up with the detailed descriptions and illustrations of the species. The descriptions include scientific name, author and date, size, differentiating features, range and habitat notes. Appendices treat taxonomic changes; explanation of scientific names; an extensive bibliography; and a glossary of scientific terms. An index to scientific names, followed by an index of general terms, completes this volume.

This book is truly a magnificent effort to provide the collector with up-to-date information on available littoral marine mollusks of South Africa. The authors have succeeded admirably in achieving this goal. This is certain to be a much used book and worth adding to one's malacological library.

Walter Sage in THE LITTORINA 8(2):6

SEASHELLS OF OMAN

by Donald and Eloise Bosch. Longman Group Limited, London. 1982. 206 pp. many color photos. $36.25.

Until the publication of this book, no readily available guide to the common shells of this remote region had been written. Now shellers visiting Oman will have a comprehensive guidebook to the shells, both rare and common, of this Arabian peninsula nation. The Boschs have attempted, and I think have succeeded, to provide color photographs of the shells they have collected over their 27 years in Oman, to give scientific information on the shells to both scientists and collectors, to write an identification handbook for the casual stroller of Oman's beaches, and to add data that would foster further research into the mollusks of the waters bordering Oman.

The book gives basic information on taxonomy, how to clean shells in Oman, a map showing the areas collected by the authors, a glossary of terms, and an index. The bulk of the book consists of 170 pages of text and excellent photos treating the Oman shells. Gastropods naturally receive the most attention, but a surprisingly large and varied selection of bivalves is presented. The scientific name, complete with author and date, is given for each species; in a number of cases the writers indicate that they have been unable to locate the proper name for a species. A concise but carefully complete description is provided as are notes on distribution, rarity, and synonyms where applicable.

Dr. and Mrs. Bosch have rendered a service to malacology in giving us this book. Collectors will want access to this book and it is a recommended volume for Indo-Pacific shellers.

Walter Sage in THE LITTORINA 8(2):6
of the Louisville Conchological Soc.

RECOMMENDED READING:

VANISHING NAIADS

by George Laycock. AUDUBON 85(1):26-28, January 1983. An interview with David H. Stansbery, Director of the Museum of Zoology, Ohio State University at Columbus.

Dr. Stansbery discusses the freshwater mussels and their endangerment by pollution and destruction of habitats. He describes their method of reproduction, notes their use through history and their economic value. He describes how research has proved the naiad to be a recorder of water quality: the filter-feeding mollusk cannot avoid pollutants, and particles of metal taken in become a part of the shell's composition. As the age of a mussel is determined by counting the annual growth rings of its shell, the scientist, knowing the date of its collection, can select the ring of a particular year to examine for content, including metals. Dr. Stansbery remarks: "I can go back in our collection and take a shell from that locale, let's say a hundred years ago, and compare the water quality then with now."

dr

THIS VIEW OF LIFE
OPUS 100

by Stephen Jay Gould. NATURAL HISTORY 92(4):10, April 1983. Three photographs, one map.

In his column Dr. Gould divulges his fascination with Cerion and describes his ten years of study and field work in the Bahamas in his attempt to attain an understanding of the genus. He speaks of the Cerion's "unparalleled diversity of form" which gave rise to some 600 names by older naturalists who named each variation in size, shape, color or texture as a "species." (Chief among the splitters was C. J. Maynard.) He tells of his searches for colonies of Cerion and describes their habitats, adding a few notes on their biology. His studies have resulted in the reduction of the 200 "species" in the Northern Bahamas to three basic types.

Three fossil species were found in the ancient dunes of New Providence Island. Two are extinct, the third is Cerion agassizi which still survives on Eleuthera and Cat Island.

dr

MORE ON MYTHS

Capt. Frank T. Moss
Walpole, N.H.

After many years of fishing, both for pleasure and professionally, and a number of years of writing and editing on fishing subjects, I have discovered that most of the so-called fishing myths do have a basis of fact, although the facts are often quite different from the popular belief. Take, for instance, the story of the "cooky cutter" skate-wing scallops.

Many years ago, at Montauk, Captain Linwood Simmons, for whom I was then working as a charter boat mate, decided to see for himself if skate wings could be made into a viable substitue for sea scallops. The cooky cutter soon was bent beyond further use by the blows of a machinist's hammer, and we were forced to resort to a three-quarter-inch gasket punch, a tool normally used to punch bolt or rivet holes through tough gasket material. We broiled and fried the resulting "scallops" and, believe me, they were chewey. They were edible, if you were hungry enough, but Simmons' dream of a cheap scallop substitute went glimmering into the garbage can.

Excerpt from: "More on Myths," in UNDERWATER NATURALIST, BULLETIN OF THE AMERICAN LITTORAL SOCIETY, Vol. 14 No. 1, Page 2, Summer 1982.

SHELLS IN THE NEWS

In the last issue of Texas Conchologist we had a short note on the devastation wrought by the Giant African Snail wherever it was introduced. In the travel Section of The Houston Chronicle, March 6, 1983, there was a funny, but sad perhaps, note about the owner of a resort, Coco Palms, On Kauai, Hawaii, who paid $3,000 for wood ducks to add color to the lagoon on her property. To her horror, the ducks ate the elegant water lilies in the lagoon, so the owner put a bounty on the head of every duck! Guests were encouraged to help catch the ducks. According to the story, "yesterday's wood ducks are today's snails." Now the owner, every Wednesday, gives guests plastic gloves, plastic pickle buckets and sticks and asks them to catch the African Snails eating the resort's foliage. The guest who comes back with the most snails earns a free dinner at the resort's restaurant. During the first week of the hunt 188 pounds of snails were gathered!

From: Texas CONCHOLOGIST XIX:(3):66, April 1983
Constance E. Boone, Editor

Re: JUNE MEETING

Note that our annual elections will be held at the June 12th meeting. Those who wish to send nominations may mail them to President Fred Cannon, 292 Warren Street, Brooklyn, New York 11201.

Re: SEPTEMBER MEETING

Everyone's dues are due in September! Do send them in promptly?

THE SECOND INTERNATIONAL CORBICULA SYMPOSIUM

will be held in Hot Springs, Arkansas, June 21-24, 1983, to examine and assess basic and applied studies related to the problem of Corbicula biofouling and control, to explore further some aspects of the basic biology of the organism, and to summarize the investigative findings and search for consensus, conclusions and practical applications among them. The Steering Committee is committed to the concept that this meeting should be an open dialogue between industrial personnel and biologists, so that their efforts can be more effectively focused toward understanding biofouling problems and devising effective measures of control.

For additional information, please contact: Louise Russert Kraemer, Department of Zoology, University of Arkansas, Fayetteville, Arkansas 72701.

AMU Newsletter 13(2) Fall, 1982

CORBICULA FLUMINEA (Müller, 1774)
IN MASSAPEQUA LAKE, LONG ISLAND, NEW YORK

The brief reports concerning Corbicula that have appeared in previous issues of these NOTES (192.7, 231.4, 276.6, 280.6, 283.4) have been gleaned mostly from various issues of the NAUTILUS. This Asian freshwater clam, first found in the Columbia River, Washington State in 1938, spread through irrigation canals and river systems south, then east, then north, reaching the Delaware River north of Philadelphia in approximately 1971 and the Raritan River in northern New Jersey, probably 1977. These areas were always "somewhere else" so we were surprised to learn that there is an established colony of Corbicula fluminea, the "pest clam" that has caused so many problems, right here on Long Island in Massapequa Lake. This lake is in eastern Nassau County, at the southern end of Massapequa Preserve. The Preserve is a narrow strip of greenery somewhat over three miles long embracing ponds, a stream, Massapequa Reservoir and Massapequa Lake. The southern border is at Merrick Road where the lake is dammed and the flow is directed through culverts for a short distance then into natural channels leading into South Oyster Bay.

Our first indication that Corbicula fluminea lived in Long Island waters came with an inquiry from Jack Foehrenbach, Senior Analytical Chemist, New York State Department of Environmental Conservation, SUNY at Stony Brook. One of the men in his department was displaying a Corbicula on his desk; he had picked up the shell at Massapequa Lake where he had been banding ducks. Mr. Foehrenbach's interest was immediate and he called to inquire about the freshwater shelling activities of our shell clubs, and asked if anyone had found Corbicula locally.

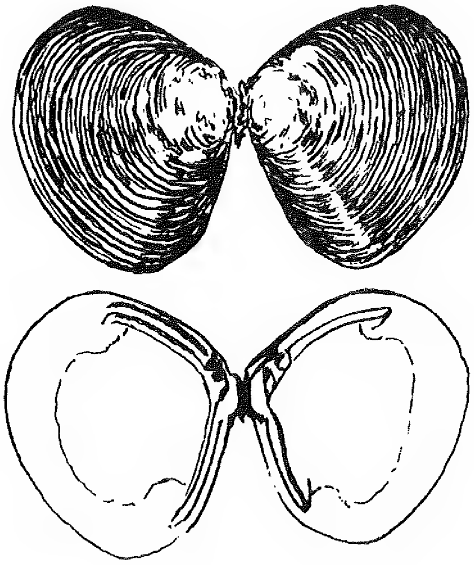
The subject of Corbicula and its spread was brought up at the March meeting of the Long Island Shell Club and, to our great interest, a gentleman in the audience remarked that he collected them from nearby Massapequa Lake. The gentleman was Walter Kluth of Rosedale, Queens, New York, an experienced sheller.

In April Mr. Kluth brought us six living specimens of Corbicula fluminea and supplied us with the following data:

Nov. 1977	I found shells of a small bivalve that I had never seen before in Massapequa Lake at the south shore along Merrick Road. Investigation revealed many more live ones along most of the south shore. I brought several home; these lived for more than a year in a small aquarium. The largest ones measured 20 mm long, 19 mm high, and 12 mm thick. Most were smaller.
1979 & 1980	Population stable.
1981	I found specimens 35 mm long, 32 mm high, and 20 mm thick.
	I found a specimen that measured 39 mm long, 35 mm high, and 24 mm thick.
Apr. 1983	Large number of winter killed shells, most in the 30 mm to 36 mm length. Also a great number of live shells but on the average a little smaller. The population has expanded greatly.

In The American Museum of Natural History GUIDE TO SHELLS, Emerson and Jacobson, 1976, the shell (as *Corbicula manilensis*, now judged synonymous with *C. fluminea*) is illustrated on Plate I, figs. 3a, 3b, and discussed on pages 423-424.

We visited Massapequa Lake with Mr. Foehrenbach and found a thriving colony. We collected live specimens, most from about a 2' depth, and empty shells to 39 mm long. The best empty shells were from a (raccoon's?) garbage pile, very fresh and expertly cleaned. The small shells 3 mm to 19 mm, had a green-brown, glossy periostracum, intact. In specimens 20 mm and larger, the periostracum was dull black and eroded off at the umbones. George Raeihle's sketches show the shell's concentric ridges and eroded beaks, the hinge structure and pallial line. The interior of the shell is off-white with a purplish band from the area of the pallial line to the ventral edge, and a grayish band a bit above the pallial line. The lateral teeth are a very good identification point: they are long, and finely serrated (Use a magnifying glass, or feel with your fingernail.).



Corbicula fluminea
(Müller, 1774)

Massapequa Lake, N. Y.

(Actual size.)

There is much work to be done to assess the state of *Corbicula* on Long Island, and the purpose of this note is to ask your help. PLEASE investigate every freshwater pond and stream in your area. Do some screening; look for these bivalves, live and dead. And, most important, PLEASE REPORT the streams and ponds you have searched, and if you find *Corbicula*, the specific location, the depth of water, whether mud or sand, and the size of the specimens. A postcard to me will do.

Dorothy Raeihle
211 Milligan Road
W. Babylon, NY 11704

DREDGINGS AT DURBAN

[A letter from Miss Dawn van der Walt of the Natal Shell Society to our Dorothy Janowsky, written October (?) 1982.]

40 Madeline Road
Morningside
Durban 4001
South Africa

Dear Dottie,

I am sorry this letter has taken so long, but as a writer I am terrible and I have a good excuse that I think you will like. These past few weeks (I think four or five, not sure) Mom, Dawn Brink and I have been down on our local beach, shell collecting. Before I go any further, let me explain.

The beaches here are disappearing, as the sea is taking it away. Well, the government came up with a scheme of dredging sand from out to sea about two miles offshore, just outside the harbour mouth towards what we call the Bluff, then pumping this sand through a long pipe onto the beach. Well, so far, so good. The pumping is now finished and the beach is full of sand and shells.

The first two to three weeks were fantastic for shells. I shall send you a complete list of the shells that were found. Most of them we had named, as Professor Dick Kilburn came down from Pietermaritzburg to help; he was excited about most of the finds, but more over the rarer ones.

Between Mom and myself we have found about 230 different species; they were all dredged from about 20 to 22 meters.

I think that as a sheller you would have enjoyed the fun we had while the water was pumping. It just sprayed out of the pipe. There were barriers put up to stop people from going too close to the pipe, as the water and sand cause the sand to become quicksand, and also to try to stop people diving inside to catch the shells rolling down, but needless to say this did not help much.

There were stacks of people chasing after shells, not only collectors, but lots of holidaymakers, and the Durbanites who have never seen shells before.

Dawn Brink has written to you and by the time you receive this letter you will have had hers. Dawn is a sheller we met through joining the Natal Shell Society and since then, which was three years ago, we have been through everything and anything mad that the three of us can do.

It does get a bit difficult with two "Dawns," as when someone calls, "Dawn," both of us arrive or say "Yes." And sometimes it causes complications as we think it's the other "Dawn" being called and we both stay quiet and then get moaned at for not answering.

Now that the pumping has stopped we are hoping to get back to normal, and do some work, although there are stacks of shells that have been buried in the tons of sand, tempting us to go and join the people who are digging in the sand on the seashore.

The list of shells I am sending has most of the shells listed, but there are still a few new names that have not yet been added. We have had such an exciting time that I am now finding it difficult to get some work done.

Thanks again for your help.

Regards,

Dawn

Dawn's incomplete list was of 240 species. Approximately 70% were gastropods, among them 15 species of *Conus*, 7 of Cypraea, 12 of *Mitra*, plus *Bulla*, *Hydatina*, *Murex*, *Bursa*, *Trochus*, *Umbraculum* etc. Dawn and her mother, Val, were featured with their shells in an article in "Fathoms, South Africa's Diving Magazine," issue of November/December 1982:

BONANZA ON DURBAN BEACH

For shell collectors, the recent six-week long sand pumping scheme embarked upon by the Durban Corporation to widen Addington Beach, turned out to be a bonanza. For the South African Navy's bomb disposal squad, however, it developed into a bonanza of an entirely different kind and one which it could have done without.

At the height of the pumping operation which began in the middle of August and ran for 24 hours a day, an unexploded naval shell which had been buried deep in the sand near the old Bluff whaling station since World War II, was sucked into the pipe and then spewed out on to Addington Beach. The bomb squad was called in to dispose of the shell.

Shells of the marine variety were so plentiful near the outlet pipe that collectors were attracted in their hundreds during the period of the pumping. One such collector was Mrs. Val van der Walt, who has been interested in the hobby for many years and has become an expert in the field.

Among some of the specimens which she and her daughter, Dawn, found were shells which had never previously been recorded in South Africa. They had apparently been buried too deep in the sand at the Bluff to be exposed by wave action.

Dr. Dick Kilburn, of the Natal Museum, an expert on South African shells, was called in to assist in identifying the specimens.

In all, the Van der Walts collected more than 260 different varieties of shells. The photographs on this page show some of the more unusual specimens which were found.*

(**Coralliophila* sp., *Epitonium* sp., *Marginella* sp., *Conus typhon*, *Oliva tremulina*, *Conus kermadecensis*, *Pecten benedictus* etc. -ed)

SHELLING IN CYPRUS

Sgt. John Robinson
'B' Watch, S.C.S.,
12. S.U., B.F.P.O. 53,
United Kingdom

There are very few shell collectors in Cyprus that I know of, and the ones I do know are servicemen like myself. Consequently the majority of the coastline is more or less virgin territory with most Mediterranean species being well represented. All my shelling has been confined to the south side of the island for obvious reasons. My undersea work has been restricted there to snorkelling, I am afraid, a fact that I am beginning to regret, as each time I go out there always seems to be something just outside my depth range.

The greater part of the coast is of volcanic origin consisting of masses of ancient lava covered with silt and weed, thus forming an ideal haven for many different species. In some areas there are so many old blowholes and undersea caves that one could spend months exploring and still not cover all of it.

So far I have come across 55 different species. The 43 gastropods, 2 scaphopods and 10 pelecypods (bivalves) are listed below. The nomenclature is that used by Stavrinos (1974) "A guide to the sea shells of Cyprus." It is a very useful book which gives a complete list of what shells one can expect to find on Cyprus.

Gastropods:

Haliotis tuberculata
Monodonta turbinata
Monodonta articulata
Calliostoma zizyphynus
Gibbula varia
Epitonium lamellosum
Janthina communis
Neverita josephina
Natica millepunctata
Trivia mediterranea
Cypraea spurca
Cypraea lurida
Dolium galea
Cassidaria echinophora
Cassis sulcosa
Astraea rugosa
Tricolia pulla
Tricolia speciosa
Smaragdia viridis
Littorina neritoides
Charonia variegata
Murex brandaris
Murex trunculus
Muricidea blainvillei
Ocinebra aciculata
Columbella rustica
Euthria cornea
Pisania maculosa
Cantharus dorbignyi
Rissoa ventricosa
Vermetus triqueter
Cerithium vulgatum
Cerithium rupestre
Bittium reticulatum
Nassa mutabilis
Nassa gibbosula
Nassa neritea
Fasciolaria tarentina
Mitra cornicula
Pusia tricolor
Conus ventricosus
Bullaria striata
Haminoea hydatis

Scaphopods:

Dentalium vulgare
Dentalium rubescens

Pelecypods (Bivalves):

Arca noae
Arca barbata
Glycymeris pilosa
Pinna squamosa
Pinna nobilis
Spondylus gaederopus
Anomia ephippium
Loripes lacteus
Chama gryphoides
Venus gallina

Charonia variegata is to be found all along the coast from Paphos in the west to Ayia Napa in the east. I have found them close inshore at a depth of only half a metre hiding in small caves in the lava, and also about half a mile offshore in about 6 metres of water on weed. Sizes go up to about 250 mm, but this size tend to have either broken spires or heavy encrustations. I came across a beautiful empty specimen measuring only 55 mm and perfect in every detail while reef walking one day after a storm at Sharks Cove near Akrotiri.

Just outside Limassol on the Nicosia road lies Amathus Beach where Cypraea spurca is to be found amongst the weed that has grown over the ancient ruins now buried beneath the sea. These ruins form a reef approximately 200 metres offshore. Cypraea spurca is only to be found on the seaward side of the reef.

I came across a specimen of Astraea rugosa on this same reef last year, but only the one example, and none since. It is a pity, as it is a beautiful little shell with all spines intact. Attractive blue examples of Conus ventricosus are also to be found at this spot, though they are difficult to find by the uninitiated as they bury themselves in the sand, and their periostracum tends to disguise whatever small part is left exposed.

I have decided to concentrate on collecting Conus ventricosus, as it seems to exist in such a variety of colours, forms and sizes I find it fascinating. If possible before returning to the United Kingdom next year I intend forming as complete a collection as possible, showing all extremes (I am still looking for a sinistral specimen). I have found them existing in all sorts of terrain ranging from sandy bottom in calm inshore waters, to holes in the reef in heavy seas. Jerry Walls' description of the shell in his "Cone Shells" illustrates it very well. If I may quote: "narrow to ovate or inflated, obconical to biconical with stepped whorls, has a rounded to carinate shoulder, may vary in colour from white to pink to blue to green to black and any shade in between, may be spirally banded or have axial stripes, and may be adult at any size from 15 mm to 65 mm." What more can be said!!!

REFERENCES

Stavrinos, G. N., 1974. A guide to the sea shells of Cyprus. Stafco Press, Ltd., 2-6 Ouzounian Street, Nicosia, Cyprus.

Walls, J. G., 1979. Cone Shells. A Synopsis of the Living Conidae. 1011 pp. T.F.H. Publications, Neptune City, New Jersey, U.S.A.

(Sgt. Robinson's report on his shelling in Cyprus is reprinted from the newsletter of the Israel Malacological Society: Levantina No. 38: 453-455.)

Larch S. Garrad wrote of Strandline Shelling in the Eastern Mediterranean (NYSC NOTES 147.7, December 1968). Of Cyprus he wrote: "Salamis has a magnificent strandline with piled drifts of Conus mediterraneus, Columbella rustica and Dentalium, occasional Haliotis, Cypraea lurida and paired 'wings' of palest pink Solecurtus strigillatus. Minute species are to be found at Famagusta on the central beach where they are trapped among the higher rocks after the winter storms and the muddy lagoon has Cerithium sp. and Cyclope neritea. . . . "

A FRESH WATER SNAIL

Ed Woods

The family name is Pilidae, which might mean "globose." The genus name is Pomacea, which might be why the common name is "Apple Snail" except that the word for apple is pomum or pomaceous. "Pomacea" is similar, but it means "pot lid," which might have been given because the tightly fitting operculum acts much like a pot lid. When the mollusk is handled it withdraws deep into the shell and the thin, horny, pliable, tough operculum is pulled way down into the shell, tightly closing the aperture.

The species name of one is paludosa, a Latin word meaning swampy, which describes the habitat of Pomacea paludosa, named by Thomas Say sometime prior to 1834. This shell, when mature, is large, up to two inches in height and width, having five whorls. A former name for Pomacea was Ampullaria, which means "big-bellied or flask-shaped." The color is pale brown to olive-brown with green-brown lines (There is a more rare yellow variety without bands, P. paludosa flava Pilsbry; flava is Latin for "yellow.").

This mollusk has been around in our canals, sloughs and marshes for so long that little is known of its original introduction, if it was introduced. The well-known Apple Snail is widely distributed over Florida in muddy, sluggish streams and ponds that contain calcium carbonate needed by the snails. It was Henry A. Pilsbry who wrote that it is most active after the sun's glare had diminished in late afternoon or at night. It is then that it moves into shallow water to feed on the lush growth of water plants along the edges of canals and ponds.

It deposits its batch of about sixty tiny white eggs around the stems of reeds just out of water, out of reach of enemies. I have seen these clusters shining white, or if maturing, turning pink. When the young hatch, they will fall into the water to start another generation. I have taken a reed with a cluster and been amazed to find it hatched in my display a few days later and the tiny miniature snails had dried before they had moved very far.

Pomacea paludosa is not harmful to man and is a valuable Florida asset which should not be taken wantonly, as it is the sole or major food source of the rare Everglade Kite, Rostrhamus sociabilis (rostr and hamus are Latin and mean "bill" and "hawk;" sociabilis is self-explanatory). This greenish snail is also a staple or primary food for the more common Florida Limpkin, Aramus guarauna. The common name, Limpkin, describes it well — a gawking timid bird with a limping gait. The Limpkin, related to the crane, is also called the "crying bird" because of its loud, prolonged, wailing cry. Its normal breeding range is restricted to areas where the Apple Snail is abundant.

We want these large wild birds, lovely in their own way, to remain with us so we should not destroy the marsh lands and canals and cut off the source of their principal food. Few people have seen these birds actually feeding on the Apple Snail, yet the Everglade Kite is called the "Snail Hawk." Unlike birds of prey, the cutting edge of its extremely hooked bill is dull and completely effaced toward the tip. The book says that it catches a snail in its claws while flying low over the marshes and then flies to its favorite perching site to patiently wait until it can impale the mollusk body as it protrudes from under the operculum. Another wait and the bird can remove the relaxed snail by a vigorous shake of its head. It is said to swallow the mollusk body, operculum and all, as the shell, uninjured by the bird, falls to the ground.

Now, the Limpkin has a four-inch-long bill and real long wading legs, so it would seem that it must pick up the snail — located by its feet, they tell me — but I believe it searches along the banks where the snail has come to feed in the late afternoon or early evening. I believe that the Limpkin must take the snail to the bank of the canal or stream to work it over, much differently than the Kite, in order to get at the meat. We find perfect, uninjured shells on the banks, the thin lip not chipped at all and the operculum lying right beside the empty shell.

I believe the Limpkin (and perhaps the more common long-legged birds, the Herons and Egrets) holds the large globose shell firmly at just the right angle and powerfully drives the bill down, perhaps glancing off the strong rounded part of the shell at the umbilicus in order to force his bill into the animal past that tough pot-lid operculum. Sometimes the opercula found beside the empty shells are slightly injured at the center of the inside edge, but never, or hardly ever, do we find a shell broken or with a damaged lip. So we have ruled out "possum" or "coons" as the predators.

I have gathered as many as seventy abandoned, empty but perfect shells and matching opercula in one trip a little way along the top of C-28 levee off the Tamiami Trail near Forty-Mile Bend out of Miami, Florida.

SHELL OF THE MONTH, reprinted from
THE MOLLUSK 20(11):1-2, Nov. 1982
pub. Greater Miami Shell Club, Inc.

(You will find an excellent photograph of bird with snail on page 69 of the May 1976 Audubon Magazine. It is one of a featured series of bird photographs taken in the field by Fred Truslow — who was then living in Homestead, Florida. The caption under the photograph reads:

> A limpkin stands in a typical "lame" pose, holding in its beak its favorite food — an apple snail. The limpkin will wedge the shell into a crevice and then, using its bill as a human would use a can-opener, wrench out the operculum to reach the animal.

We would say that this description confirms Mr. Woods' idea of how the Limpkin manages its food. — DR Ed.)

HAVE A GREAT SUMMER!

If you plan carefully you may be able to attend most of the events listed on pages 3 - 5 of this issue. And won't you report your adventures to these NOTES? . . . Registration forms for AMU should be in by May 30th.

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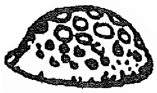

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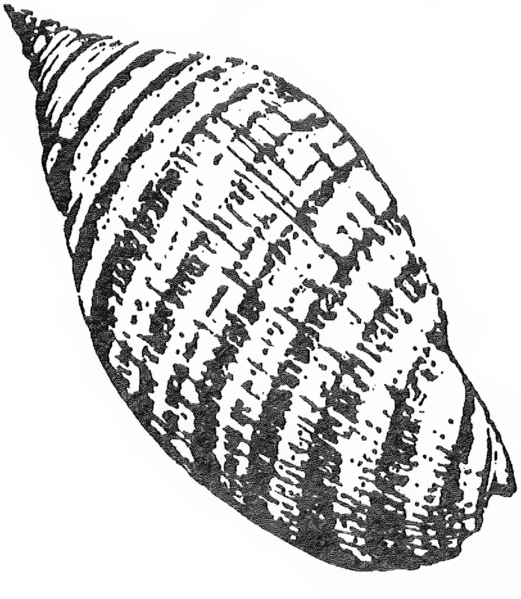

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The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 426, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETINGS: SUNDAY, SEPTEMBER 11, 1983, at 2:00 p.m.

SUNDAY, OCTOBER 9, 1983, at 2:00 p.m.

SUNDAY, NOVEMBER 13, 1983, at 2:00 p.m.

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IN APPRECIATION

Many thanks to our retiring president, Fred Cannon, who served in that office for four years. The club appreciates his unselfish devotion in taking the reins for the longest period ever served by a New York Shell Club president.

Fred joined the New York Shell Club in the 1950's when a lad, and in those early years served as the club's historian 1958-1961. After an absence in the 1960's he returned to the club with increased interest in the hobby. He was an active participant in the NYSC exhibit at the American Museum of Natural History in November, 1981. He also displayed a splendid exhibit at the Long Island Shell Club's show in the spring of 1982.

Fred has earned a rest from the responsibilities of office, but we look forward to his continuing participation, both as a member and in his new position as a director.

D. Raeihle for the NYSC

WALTER SAGE JOINS THE AMNH

Mr. Walter E. Sage III assumed the professional duties of the late William E. Old, Jr., on June 13, 1983 at the American Museum of Natural History, New York City. Mr. Sage, who holds the title of Scientific Assistant in the Department of Invertebrates, is a long-time student of mollusks. He was president of the Louisville Conchological Society from 1973 to 1978, and founded and edited that organization's educational journal, The Littorina. He is the author of numerous articles pertaining to malacology. We are most pleased to have him on our staff.

William K. Emerson
Curator of Mollusks
Department of Invertebrates
American Museum of Natural History

* * * * *

The New York Shell Club is also pleased to welcome Walter Sage, to New York and to the club. Many of us are acquainted with Walter from his visits here in past years, and from the 1980 AMU meeting in Louisville, Kentucky when he headed the busy host committee. Readers of these NOTES will also recall that we have reprinted book reviews and other of his writings that originally appeared in the Louisville Conchological Society's publication, The Littorina (Two of his reviews appear in this issue.).

Walter has done curatorial work for the Louisville Museum of Science and History, and recently managed the business of American Malacologists while Dr. and Mrs. Tucker Abbott were on their trip around the world.

Our best wishes to Walter in his new position.

D. Raeihle for the NYSC

HIGHLIGHTS OF THE MAY MEETING

President Fred Cannon commented that attendance at the April social meeting was surprisingly good considering the weather — heavy rain into the afternoon. The financial report on the social meeting was: Income — door $74, auction $1141, sale table $48.60, raffle $55, for a total of $1,318.60. Expenses — $247.25, leaving a net of $1,071.35. Fred reported that donations directly to the fund honoring Bill Old total $520, bringing the contribution arising from the social meeting to $1,591.35.

Leftover shells from the sale table were given to the Long Island Shell Club to be used in craft work. The NYSC has received a letter of thanks from Hank Foglino, LISC president.

Concerning elections at the June meeting, Fred said that Carol Linsay would serve on the nominating committee. He added that Dorothy Raeihle would like to be replaced as NOTES editor, and that two directors, Bill Old and Harold Sussman, would have to be replaced.

Mathilde Weingartner reported that a share of the proceeds of a shell auction to be held at the AMU annual meeting would be donated in Bill Old's memory to the AMU symposium endowment fund. Fred drew attention to a long letter from Ethelyn Woodlock, in which she reminisced about Bill Old.

Historian Nick Katsaras reported that he had compiled a list of NYSC members past and present who had become well known as collectors, and dealers he has known. He mentioned Alice Barlow, Crawford Cate, Phil Clover, Tony D'Attilio, Simon DeMarco, Grace Edison, Flynn Ford, Philip Hano, George Jacobs, Karl Jacobson, Dorothy Jensen, Russ Jensen, Veronica Johns, Selma Lawson, Brooks McCormick, Bill Old, Harold Feinberg, Dorothy and George Raeihle, Fred Tobleman, William Weeks and Sol Weiss. Someone added Nick's own name to the list.

The speaker was Sol Weiss. In introducing him, Fred announced that Sol and Mary Snediker had recently married. The newlywed was given a round of applause. Sol's subject was "Freaks and Unusual Shells." He noted that there are no books on the subject. Frank Nelson recalled a paper on malformation by D'Alte Welsh.

To illustrate the types of abnormalities found in shells, Sol had a number of examples on display and showed slide photos of many more. They showed albinism, melanism, discoloration from spilled oil and the rust from wrecks, bent and doubled siphonal canals, bent spires, malformed shoulders, and misshapen lips. The genera included Conus, Cypraea, Murex, Strombus, Lambis, Voluta and Nautilus, from the collections of Bob Janowsky, Fred Cannon, and Sol.

Milton Werner, Recording Secretary

HIGHLIGHTS OF THE JUNE MEETING

President Fred Cannon announced that the club had received an acknowledgment with thanks from Dr. William K. Emerson for our contribution of $1,591.35 to the William E. Old Malacology Fund.

Fred then introduced Walter Sage III who will be filling the position which had been held by Bill Old at the museum.

The next order of business was the 1983 election of officers and directors. The following slate was nominated and elected: Newly elected to the offices were President Monique Caubere, Vice President Mary Anne Bastek, and Directors Fred Cannon, Frank Nelson and Richard Goldberg. Incumbents reelected were Treasurer Theta Lourbacos, Recording Secretary Milton Werner, Corresponding Secretary Carol Lindsay, Historian Nick Katsaras, and Librarian Frank Nelson.

The program for our meeting was given by Theta Lourbacos on New Zealand, Fiji, and Western Samoa. Theta's trip to these islands was a

Continental Excursion from Los Angeles which she had completed two years ago (almost exactly to the date of our meeting).

Theta showed many slides of New Zealand — both the North and South Islands — as she described the terrain, history, beaches, coastal areas, volcanoes, mountains and sheep.

With the slides of Western Samoa Theta described the flowers, shell decorations on buildings, the jungle-like growth of the area, and lava rocks which are found in the swimming area.

Through Theta's slides and talk of Fiji we learned about the various islands which include beaches, sugar cane fields, volcanic formations, clams, purple starfish, mangroves, coconut plantations, coral reefs, tidepools, a culture center, and a temple.

Carol Lindsay, Corres. Secretary

AMNH RECEIVES THE JOHNSTONE COLLECTION

The Kathleen Yerger and Harry Inge Johnstone Collection of western Atlantic mollusks is in the process of being incorporated by Walter E. Sage into the collection of the American Museum of Natural History. Totaling 1,566 lots and approximately 15,000 specimens, the Johnstone Collection was recently cataloged by Mrs. Theta Lourbacos, a devoted volunteer in the Department of Invertebrates and the treasurer of the New York Shell Club. This valuable acquisition fills many gaps in our collection and was obtained largely through the generosity of Nathan L. Halpern of New York City.

The collection, accumulated by the Johnstones over a period of 35 years, is especially rich in well-documented material from the Gulf of Mexico that was collected by them and others intertidally and offshore by dredging and trawling operations. Included are paratypes of species named in honor of the Johnstones, namely: Melongena corona johnstonei Clench and Turner, 1956, and Scaphella junonia johnstoneae Clench, 1953. Some of the specimens were used to illustrate Kathleen Johnstone's well-known books, "A guide to Shell Collecting," Houghton Mifflin Co., Boston, 1957, and "Sea Treasure, Collecting Seashells," Grossett & Dunlap, New York, 1970. We are most pleased to add this valuable material to our reference collection of mollusks.

William K. Emerson
Curator of Mollusks
Department of Invertebrates
American Museum of Natural History

PHILADELPHIA SHOW OCTOBER 1 & 2

The Philadelphia Shell Club will hold their first Shell Show at the beginning of October. Dates and hours are:

Saturday, October 1st — 10:00 a.m. - 10:00 p.m.
Sunday, October 2nd — 10:00 a.m. - 6:00 p.m.

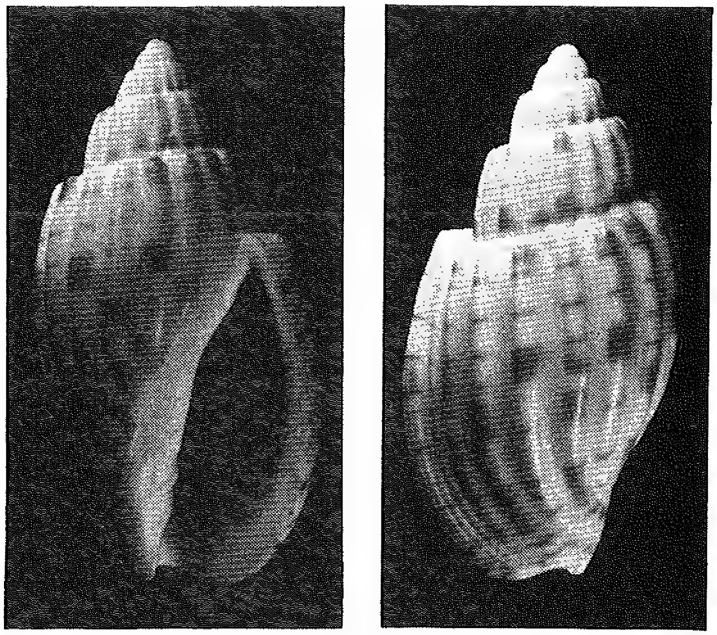
The show will be held in the Great Hall of the Creese Student Center of Drexel University, 32nd and Chestnut Streets, Philadelphia.

Why not plan a visit? It is not too long a drive from New York — or take the train to the 30th Street Station.

A HOME FOR THE ANNA VOLUTE (Lyria anna Lesson, 1835)

S. Peter Dance

Several volutes belonging to the genus Lyria have always been virtually unobtainable by most collectors. Indeed, all but four or five members of this genus may be considered scarce or rare. The Anna Volute, for instance, has been available since the 1820's but is still absent from most collections made this century. There is a simple explanation for its continued scarcity: no one has been quite certain where it lives. Effectively it has always been a 'lost' species or, to be more correct, locality data for it has been so contradictory as to be less than helpful.


Lyria anna (Lesson, 1835)
5.8 x 3.0 cm.

Collection of S. P. Dance
Photo by S. P. Dance May 1983

No locality was given by Swainson when he described it (as costata) in 1824, and again (as harpa) in 1836. Similarly, Lesson gave no locality when he described it (as anna) in 1835. Subsequently Kiener gave 'les mers du Japon' in his Species Générale in 1839; and Hanley also gave 'Japan' in his edition of Swainson's Exotic Conchology in 1841. Reeve complicated matters by giving 'Moluccas' as the locality for it in his Conchologia Iconica monograph of Voluta in 1849. Much later Tryon gave 'Moluccas; Indian Ocean' in the Manual of Conchology in 1882.

Clearly none of these authors had any reliable locality information at their disposal. Dealers and collectors seem to have settled mostly for 'Moluccas', and that locality has been written on labels accompanying most of the specimens I have examined in old collections (it is the only locality given on the labels accompanying each of the three specimens in the Melvill Tomlin Collection at the National Museum of Wales, Cardiff). The 'Moluccas', it should be noted, often did service in earlier days as a convenient dumping ground for species of unknown provenance, Reeve being particularly partial to it for this purpose.

That the Indian Ocean could be its home was indicated in 1936 by R. Viader in his Revised Catalogue of the Testaceous Mollusca of Mauritius and its Dependencies. In this uncritical list we find (p. 17) 'V. costata Swainson = V. anna Lesson', without a more specific locality being given than is implied in the title. Viader's indication seems to have been adopted by Rutherford Platt in his well known article 'Shells take you over world horizons' (National Geographic for July 1949) in which he illustrates a specimen (p. 51) with the caption 'costata (Mauritius)'. In their comprehensive treatment of the Volutidae Weaver and Dupont (The Living Volutes, 1970) are sceptical about all the previously suggested localities. Eisenberg, in his Seashells of the World (1981, p. 113), plays safe by giving both Mauritius and Moluccas as localities. Finally, Abbott and Dance, in their recently published Compendium of Seashells (1982, p. 214) opt for 'Indonesia' but add, 'No reliable records available.'

Fortunately it is now possible to throw some light on the problem of the Anna Volute's real home. Some months ago I bought a large example of Lyria anna, incorrectly labelled 'Voluta delessertiana', at a convention of the British Shell Collectors Club in London. By chance I discovered, much later, that it had been one of four acquired by Mr. Geoff Cox of Odiham, Hampshire. He told me that all four had been part of a large collection of Mauritian shells he had obtained from 'a lady'. The one I had bought had 'got away' before he had realised its true identity (he has since parted with a second specimen to another collector). Once he knew that the four volutes had a rarity value he contacted the lady to see if she could tell him anything about them. He learnt that they had been dredged from a depth of between 500 and 700 feet about ten miles north of St. Brandon Island, some time in the early 1930's. One had been brought up alive, the others dead and possibly inhabited by hermit crabs.

St. Brandon Island is the principal member of the St. Brandon Islands (now known as the Cargados Carajos Shoals) lying about 300 miles NNE of Mauritius. Well off the beaten track and seldom visited by shell collectors the Cargados Carajos Shoals, constituting a dependency of Mauritius, are known to harbour an interesting shell fauna. During the nineteenth century, for instance, Sir David Barclay procured several rarities from there, such as Naquetia barclayi Reeve and Ctenocardia victor Angas. Significantly, perhaps, his collection, auctioned in London in 1891, included the following item: 'Voluta costata, a beautiful specimen' (Lot 553a).

The mystery is solved, at least partially. Whether or not the species also frequents Indonesian or Japanese waters is still conjectural. As I was once convinced it would never turn up anywhere near Mauritius I am keeping an open mind about possible extensions to its known range. For the present it is good to know that the Anna Volute is no longer homeless.

REVIEW:

REVISION DES TROPHONINAE D'EUROPE

by Roland Houart, 1981. Published by the Belgian Malacological Society. Available from the author, address St. Jobsstraat, 8, B-3330 Landen (Ezemaal), Belgium. 70 pp., 6 b/w plates, numerous figures.

This work completely revises the European members of the muricid subfamily Trophoninae. The author reduces 57 species names to 11 species that he recognizes as valid. These species are discussed, described, and illustrated, both in black and white photos and line drawings. Distribution maps are also given. The 11 species are allocated to the following genera: 2 to Boreotrophon, 7 to Trophonopsis, 1 to Nodulotrophon, and 1 to Nipponotrophon, this last genus new to the European fauna. This paper will prove of great interest to European collectors and malacologists and, of course, to fanciers of the Muricidae. This well done paper will hopefully help begin a revision of the worldwide members of this subfamily.

Walter E. Sage

REVIEW:

ENDODONTOID LAND SNAILS FROM PACIFIC ISLANDS
(Mollusca: Pulmonata: Sigmurethra)
Part II. Families Punctidae and Charopidae. Zoogeography.

by Alan Solem, 1982. Field Museum of Natural History, Chicago, Illinois. 336 pp., 143 figures, 75 tables. $53.50.

This second of two monographs revising the endodontoid land snails of Polynesia, Micronesia, and Fiji discusses 21 genera and 98 species, of which 19 and 50, respectively, are described as new. 87 of the species are from the area studied, the other 11 are related extralimital species. Detailed description and excellent drawings of the shells of each species make up the body of the work, supplemented by the author's anatomical illustrations where living species were available. One species of Punctidae is recognized, while the Charopidae makes up the vast bulk of the species treated. Similarities and differences between species are an important part of this work, as are the many tables and SEM micrographs.

A measure of the research involved in this monograph are the 50 new species and 19 genera recognized as new. Geographic keys to the genera, a systematic listing of the specific taxa, a section on patterns of morphological variation, comparison between conchological aspects of the Endodontidae and Charopidae, and an analysis of zoogeographic patterns add much to the reader's understanding of these Pacific land snails. The author's many years of research into this group of small to minute snails is detailed for the reader in this monumental contribution to malacology. Comprehensive geographic and systematic indices and a complete bibliography complement the systematic review. The author is to be commended for providing malacologists with this outstanding piece of work. The illustrations alone are worth a great deal. The author has set the stage for a broader review of land snail classification, and more specifically for reviews of the Hawaiian endodontids, estimated at 290, mostly extinct species, and other areas such as New Caledonia. On a more whimsical note, this reviewer appreciated the author's naming a new species as Ba humbugi, an action which indicates that the author has not lost sight of reality in his quest to bring order to the classification of the land snails of the geographic area treated. Anyone interested in learning more about land snails must consult this monograph and its companion volume issued in 1976. The author is to be applauded for creating a work of lasting malacological importance, and one that will serve as a model for further investigations.

Walter E. Sage

The above reviews by Walter E. Sage are reprinted with permission from the Louisville Conchological Society's publication, THE LITTORINA, Volume 8, No. 3, July, August, September 1983, pp. 6-7.

REVIEW:

THE LOG OF THE MYTHICAL "S.S. ADVENTURE"

by Adlai B. Wheel, Sr., 4501 West Seneca Turnpike, Syracuse, N. Y. 13215. Privately printed 1983. 103 unnumbered pages, 6"x9", soft cover, spiral binding. Price $6.50 from the author.

"Captain" Wheel has compiled reminiscences of his work of more than 35 years with boys 8 to 14 years of age, members of his "Adventurer's Club" — a continuing group within the Syracuse (New York) Boys' Club. The short articles making up the text are presented simply, as they were to the juveniles, and range from descriptions of the meetings, local field trips and Indian tales to the poisonous cone and man-eating clam, plus a myth or two; he tells of guest speakers and the building of his little museum with the help of donations. The objective of his work: "To inspire boys to collect natural history materials and from these materials collected, learn to walk with seeing eyes."

This little volume will be of interest chiefly to the alumni of the Syracuse Boys' Club.

Dorothy Raeihle

ANOTHER PREDATOR ON SEED CLAMS

It has been discovered that the big-clawed snapping shrimp, Alpheus heterochaelis, which is only one and a half inches long, is predatory on seed clams. This little creature can crush clams up to 2 centimeters long (about one year old) at the rate of 3 per day!

The snapping shrimp is abundant in Back, Bogue, and Core Sounds, North Carolina. According to discoveries by Sea Grant researchers Brian Beal and Dr. Charles Peterson at the University of North Carolina Institute of Marine Sciences, previous studies may have overestimated the predation rates of blue crabs, as the crushed shell left behind by the snapping shrimp looks identical to the crushed shell left by the blue crab. Thus one more challenge has been presented to the growers of clams who for years have been devising ways of protecting the beds from whelks, drills, rays, and blue crabs.

From: "The Case of the Crushed Clams"
by Kathy Hart. Sea Grant Today
12(6):3,4 Nov./Dec. 1982.

SCALLOPS — BOUNTY OF OUR BAYS

Harvesting of the bay scallop, Argopecten irradians, has long been a vital part of the life on the eastern end of Long Island. While sea scallops, Placopecten magellanicus, and calicos, Argopecten gibbus, are harvested by large dredges and opened by machine, the bay scallop is harvested by hand-hauled dredges, and hand-opened.

Bay scallops have a definite season, which runs from the last Monday in September to March 31. This is the only time of year in which fresh bay scallops can be obtained, although some are frozen for sale during the off-season.

MECLI Newsletter
12(1):1 Winter 1983

PREDATORS ON CORAL

A few years ago much was written about the destruction of Australian coral reefs by the Crown of Thorns Starfish, Acanthaster planci, and the suggestion was made that the increased numbers of the starfish may have been due to the overcollecting of its predator, Charonia tritonis, the large and beautiful Triton's Trumpet.

A news item April 16, 1983 on "Oceanus" (a program on public TV channels) stated that geologists have discovered that starfish destroying reefs is a natural phenomenon which repeats periodically, and that the proliferation of the Crown of Thorns Starfish is poorly understood.

In NAUTILUS of April 21, 1982, Vol. 96(2) pp. 69-82, is published a detailed report of molluscan predation on corals. It is recommended reading. We excerpt from the abstract (p. 69) and from the field report (p. 72) of the paper entitled:

MASSIVE DESTRUCTION OF SCLERACTINIAN CORALS BY THE MURICID GASTROPOD, DRUPELLA, IN JAPAN AND THE PHILIPPINES

by Jack T. Moyer, William K. Emerson and Michael Ross

(From the abstract:) Aggregates of the muricid gastropods Drupella fragum, at Miyake-jima, Japan, and Drupella rugosa, at Mactan Island, Cebu, Philippines, were noted to result in widespread destruction of scleractinian corals (=hard corals -ed.). Destruction was limited to fast-growing foliate forms such as Montipora, Acropora, Pocillopora, etc. (and) appeared to represent a biological control on coral reef structure, "weeding out" fast growing forms and providing space and settlement sites for other coral species, thus increasing diversity over time. At Miyake-jima, in the warm temperate waters of southern Japan, Acropora spp. are dominant. Coral destruction by Drupella fragum has been massive on Acropora reefs at Miyake-jima, amounting to as much as 35% of our study reef in two years.

(From the field observations:) Accurate observations and measurements of D. fragum destruction were not possible until the autumn of 1980 when one of us (JTM) was engaged in daily Acanthaster monitoring as part of a removal program. At this time, sizeable areas of freshly killed white Acropora spp. were discovered, with the area of destruction widening on a daily basis. Careful searches in and under the corals disclosed only swarms of Drupella fragum. During an evening dive, 17 September 1980, an infestation of several thousand Drupella fragum was found massed around the border between living and dead corals, devouring the polyps. The snails were bunched around and on top of each other in such numbers that it was impossible to estimate how many individuals were present. Between 20:25 h and 21:00 h, a total of about 1,500 were collected. ... Hundreds of others fell through the coral branches and could not be recovered. ... This swarm of D. fragum seemed to disperse as waters cooled in winter, however, an area of 35 m^2 of reef was destroyed by their predation during the two month period of observations. No egg cases were observed on or under the corals, suggesting that the gastropods were swarming to feed.

The report is well illustrated with photographs of the shells of Drupella, coral platforms, and the swarming Drupella.

(DR —ed.)

Editor's note: As you read these next two articles, imagine the areas (especially Florida) as they may have been just before the turn of the century. The articles were first printed in 1897 and 1896, respectively. They were reprinted in "The Best of the Nautilus" and we reprint the reprints with the permission of the editor. "The Best of the Nautilus — An Anthology of American Conchology," 1976, may still be available from American Malacologists, Inc., P.O. Box 2255, Melbourne, Florida 32901.

The Nautilus APRIL, 1897 Vol. X No. 12

THE IANTHINAS.

By Charles T. Simpson

The Ianthinas, or violet snails, live gregarious in the open seas of the tropics, and float by means of a raft composed of vesicles filled with air, which cannot be withdrawn into the shell. Sometimes they are carried by winds and currents into the seas of temperate regions, and their shells have been found along the shores of our own country as far north as New England. I had collected for many years and in many countries, but had never found, perhaps, more than a dozen dead, broken shells. In January, 1883, I was on a large schooner bound for Spanish Honduras, and we stopped at Key West, where I spent one of the most delightful weeks of my life gathering Cylindrellas, Chondropomas, Cerions, Helicina orbiculata, and the beautiful Orthalicus, Liguus, and Bulimulus multilineatus in the thick, thorny, tropical scrub, or Strombs and bright Tellinas and blending Neritas and a hundred other interesting forms along the south shore. We were to sail about noon on Sunday, but I could not resist the temptation to take one last look at the places where I had spent so many happy hours, so after breakfast I wandered through the city and out to the beach.

Before I reached it I noticed that as far as the eye could see, it was a mass of the most intense, glowing violet color, and on coming up to it was astonished to find that this color came from untold millions of Ianthina, which had been washed up in the night, for when I had left the beach the evening before at dusk, not one was to be seen. To say that they lined the shore gives no idea of the real truth. Everywhere, from below low water to highest tide mark they were piled up, in most places, over shoe-top deep, and in the hollows of rocks one could have waded in among them up to his knees—shell, animal and float all of a vivid purple, the richness of which soon fades, to a great extent, in dead shells or preserved specimens. They were all dead—a kind of slimy mass—and they somehow looked pitiful.

There had been no storm, nothing but an ordinary breeze blowing up from the south, and it is probable that an immense school had been drifted along, and where they struck the island, some five miles in length, every one within that distance was stranded.

I had brought no basket or sack or anything to collect in, but I could not bear to go away and leave that vast bed of treasures without taking at least a few with me. I searched in vain for a box or tin can or a piece of canvas, but could find absolutely nothing, not even a scrap of paper. I took out my handkerchief, knotted the corners, and tried to pull out the animals from the shells, but the whole mass was so slippery and the shells were so frail that the latter invariably broke, so I filled it with shells, animals and all, as many as it would hold. Then I took off my straw hat and filled it, and that would not satisfy me, for as I wandered along I found so many fine specimens that I began to put them into my pockets, and I did not leave the shore until every pocket was bursting full. I had on a linen coat and white duck pants; the day was hot and it seemed to me that those Ianthinas melted. In a little while streaks of glowing violet began to show down my clothes; I felt a clammy, wet, uncomfortable feeling clear through to my skin, and my shoes were filled with purple liquid. By the time I reached the city I looked like an Indian in war paint, and I have no doubt that the people of Key West, who were just going to church, thought I was a lunatic, and perhaps they were not far from right. At last I reached the schooner, took off and threw away my suit, which was utterly ruined, and got my precious mollusks into sea water to soak, although at least half of them were broken, yet, when I cleaned them out, I had the satisfaction of counting up over 2,000 good shells.

Editor's note: In the following article we are keeping the original nomenclature. Purpura lapillus is one of the earlier names for the present Nucella lapillus (Linné, 1758).

PURPURA LAPILLUS L.

(Extract from the report of Mrs. D. J. Wentworth. From the Transactions of the Isaac Lea Chapter for 1896.)

No shell is more common on our New England shores than Purpura lapillus Linné, and yet, no shell of this region has to me, at least, so much of interest connected with it.

Purpura lapillus is an humble but most worthy descendant of the aristocratic Muricidae, and surely the Murex is an aristocrat among shells, with its beautiful forms, dainty sculpturing, delicate coloring, and its long traditions of usefulness and importance.

Plain in its general aspect, as it certainly is, Purpura lapillus has, nevertheless, much in common with its more highly favored relations. It is an old member of an ancient race, fossil remains of Purpura lapillus are found in the Red Crag deposits of Europe.

This species is remarkable for its variation in solidity of shell, form, sculpture, size, coloring and habitat. It varies in thickness from three-sixteenths of an inch to a shell so thin one could easily perforate the outer lip with a pin. In form they vary from a short broad shell with obtuse spire and flattened whorls to a long shell with acute spire and convex whorls.

In some the coarse revolving ridges are barely discernable, while in others they are very prominent. The faint lines of growth which intersect the revolving ridges of this shell are, in some specimens, brought into marked prominence by rows of ruffles or scallops, and this sculpturing undoubtedly gave Lamarck reason for naming this variety Purpura umbilicata. Many of the solid shells have rows of nodules or teeth within the aperture on the outer lip.

These solid shells are usually grayish-white outside, with reddidh-purple, yellow or white apertures; but the thinner shells are often brown, orange or lavender, and these colors are frequently banded with white. I have never seen two specimens banded just alike. The orange and white combinations are especially pretty. The variety called by Lamarck P. umbilicata, so far as I have observed, are always a greyish-white on the outside, with a reddish-purple aperture. This variety I have found only in a brackish river where they are often seen crawling about in the mud, and their color is so nearly the color of the mud on which they are found that it undoubtedly serves to protect them from the ravages of their enemy. Associated in this river with Purpura lapillus, and much resembling it in size, color and general shape, is the Urosalpinx cinerea.

Purpura lapillus is an arctic species and ranges from Norway to New York. It is found on the coast of Europe, where, according to Sowerby, it grows much larger than on our own coast.

This species confines his daily rambles to that part of the shores left bare by the tides, seldom venturing below low water mark. There on the rocks or other hard substances he finds his favorite food, the succulent barnacle, sometimes varying his diet with a choice bit of Mytilus edulis, to obtain which he will bore through the shell. Finally the mussel becomes so weakened that its valves fly open, when the Purpura promptly accepts the more favorable opening and proceeds to gorge himself with the delicious morsel, after which he will lie inactive waiting for a return of appetite. Limpets, Littorinas, clams, mussels, etc., are said to find a place on his menu.

From time to time throughout the year the Purpura deposits its eggs enclosed in little vase like capsules. These capsules may be found in clusters attached to the undersides of rocks. In confinement it takes about four months for these eggs to mature and then the young do not immediately leave the capsule, seemingly preferring to try their strength a little before venturing on the broad ocean. The young hatched in captivity instinctively leave the water every day, remaining out about the time it takes for the tide to ebb and flow.

A few years ago while fishing I had occasion to crack some Purpura for bait. After cracking their shells I placed the snails in my handkerchief to keep them safely until needed. I soon found that the snails had stained my handkerchief with bright purple spots which repeated washings only served to render more brilliant. Thus I was reminded of the Tyrian purple of the ancients, and led to fancy that perhaps in a somewhat similar manner, the dye was discovered. In later years this dye was manufactured in Ireland but so little was obtained from each animal, and other cheaper dyes being discovered, our humble shell-fish were left to die a natural death, and are now useful only to amateur fishermen and so-called "queer people," or "cranks" who go around collecting shells and studying them.

Purpura lapillus, commonly called "dog winkle" by the English, has many scientific names, among which are Buccinum lapillus, Tritonium lapillus, etc. But what is a name? The Purpura lapillus under whatever name he has crawled or sailed has a long, interesting honorable history.

(For other articles re: "snail purple" see NYSC NOTES 229.4,231.3 "Snail Dyes in Oaxaca" by Cowles; 285.8 "Snail Purple Around the World" by Cowles.)

THE GENUS PTERYNOTUS SWAINSON, 1833 (MURICIDAE: MURICINAE)

Anthony D'Attilio and Barbara W. Myers
Dept. Marine Invertebrates, San Diego Natural History Museum
P.O. Box 1390, San Diego, California 92112

SUBFAMILY: Muricinae Rafinesque, 1815

GENUS: Pterynotus Swainson, 1833
Type by subsequent designation Murex clavus Kiener, 1843 not M. clava Gmelin, 1791 nor M. clavus Michelotti, 1841 (=M. elongatus Lightfoot, 1786)

The genus Pterynotus is assigned to the subfamily Muricinae based on the structure of the radula and the morphology of the operculum. The type of the genus, P. pinnatus (Swainson, 1822) (= P. alatus Röding, 1798), has a fusiform shape and possesses three varices which project beyond the varical rib into a flange or wing-like blade; scaly spiral ribs are present. The aperture has a row of small nodes (pimple-like denticles) on the inside of the outer lip near the lip edge, and the siphonal canal is narrowly open along its entire length. The radula of P. alatus is Muricinae in overall appearance. The central tooth or rachidian plate has five cusps, the central longest, the two laterals shorter and the intermediate cusps are comparatively very small. The lateral teeth on each side of the rachidian are typically hook or scythe-like, pointed at both ends.

The operculum of P. alatus is oval, the anterior end pointed; the nucleus is anteriorly placed and concentric ridges radiate around the nucleus.

Superficially, Pterynotus closely resembles Pteropurpura Jousseaume, 1880, which has an Ocenebrinae radula and operculum. Pteropurpura like Pterynotus has a trivaricate shell with the varices developing into wing-like flanges. The siphonal canal, however, is closed in Pteropurpura.

Since the publication of MUREX SHELLS OF THE WORLD (Radwin and D'Attilio, 1976) some additional Recent species of Pterynotus have been described. These new species are enumerated herein. Observations on the distribution of all known species of Pterynotus are made.

Pterynotus albobrunneus Bertsch & D'Attilio, 1980. Venus (Japanese Journ. Malac.) 39(3):131-133, figs. 1-2.

Pterynotus aparrii D'Attilio & Bertsch, 1980. Trans. San Diego Soc. Nat. Hist. 19(12):172-173, figs. 2a-d.

?Pterynotus concavopterus Kosuge, 1980. Bull. Inst. Malac. Tokyo 1(4):54-55, pl. 15, figs. 3-5.

Pterynotus lightbourni Harasewych & Jensen, 1979. Nemouria (Delaware Mus. Nat. Hist.) Occ. Pap. #22:8-11, figs. 7-9, 15.

Pterynotus miyokoae Kosuge, 1979. Bull. Inst. Malac. Tokyo 1(1):1, pl. 1, figs. 1-7.

Pterynotus orchidiflorus Shikama, 1973. Sci. Rpts. Yokohama Nat. Univ. Sect. 2(20) 6.
= P. subtilis (Houart, 1977). Informations Soc. Belge Malac. 5(2):13-14, figs. 1-5.
= P. cerinamarumai Kosuge, 1980. Bull. Inst. Malac. Tokyo 1(4):53-54, pl. 14 figs. 3, 5-9, pl. 15 figs. 1-2.

Pterynotus radwini Harasewych & Jensen, 1979. Nemouria (Delaware Mus. Nat. Hist.) Occ. Pap. #22:11-12, fig. 10.

?Pterynotus xenos Harasewych, 1982. Proc. Biol. Soc. Wash. 95(4): 639-641, 3 figs.

Other species frequently referred to Pterynotus, but not here considered Pterynotus s.s.:

ariomus (Clench & Perez-Farfante, 1945). Assigned to Pterochelus (Radwin & D'Attilio 1976).

barclayanus H. Adams, 1873. Formerly assigned to Marchia (Radwin & D'Attilio 1976). Although the radula is Muricinae, this species has more than 3 varices. Systematic position is in doubt.

bibbeyi Radwin & D'Attilio, 1976. Formerly assigned to Marchia (Radwin & D'Attilio 1976). Although the radula is Muricinae, this species has 4 varices. Systematic position is in doubt.

bipinnatus Reeve, 1845. Formerly assigned to Marchia (Radwin & D'Attilio 1976). Although the radula is Muricinae, this species has 3 to 4 varices and a nodulose spire. Systematic position is in doubt.

exquisitus Sowerby, 1904. Assigned to Subpterynotus (Vokes 1971). Radula unknown, systematic position in doubt.

gambiensis (Reeve, 1845). Assigned to Purpurellus (Radwin & D'Attilio 1976).

guesti (Harasewych & Jensen, 1979). We are assigning this species to Pterochelus. The structure of the varix is typical for that genus.

laqueatus Sowerby, 1841. Formerly assigned to Marchia (Radwin & D'Attilio 1976). Although this species has 3 varices, the radula is not Muricinae. Systematic position is in doubt.

martinetana Roding, 1798. Formerly assigned to Marchia (Radwin & D'Attilio 1976). This species has 4 varices; radula unknown. Systematic position is in doubt.

macleani (Emerson & D'Attilio, 1969). Assigned to Purpurellus (Radwin & D'Attilio 1976).

nodulifera (Sowerby, 1841). Formerly assigned to Marchia (Radwin & D'Attilio 1976). This species has 5 varices; radula Muricinae. Assigned to Attiliosa (Vokes & D'Attilio 1982).

pinniger (Broderip, 1833). Assigned to Purpurellus (Radwin & D'Attilio, 1976).

purpureus Azuma, 1976. Although the radula is Muricinae, this species has 9 axial ribs and the only wing-like varix is at the aperture. Systematic position is in doubt.

tatei (Verco, 1895). Assigned to Murexiella (Vokes, 1974).

textilis (Gabb, 1873). Assigned to Murexiella (Vokes 1974).

trigonula (Lamarck, 1816). Assigned to *Naquetia* (Rad. & D'Att. 1976).

tripterus Born, 1778. Formerly assigned to *Marchia* (Radwin & D'Attilio 1976). Although this species has 3 varices, the radula is not particularly Muricinae. Systematic position is in doubt.

Geographical distribution of all known *Pterynotus* s.s.

P. alatus (Röding, 1798). Western Pacific and eastern Indian Ocean.
P. albobrunneus Bert. & D'Att., 1980. Laccadive Is., Indian Ocean; Zanzibar, Tanzania, Mozambique.
P. aparrii D'Att. & Bert., 1980. Cebu Is., Bohol Str., Philippines.
P. bednalli (Brazier, 1878). North and northwest Australia.
?*P. concavopterus* Kosuge, 1980. Bohol Island, Philippine Islands.
P. elongatus (Lightfoot, 1786). Indo-Pacific.
P. leucas (Locard, 1897). Off NW Africa in deep water (640 m).
P. lightbourni Harasewych & Jensen, 1979. Off St. David's, Bermuda.
P. loebbeckei (Kobelt, 1879). Western Pacific to Indian Ocean.
P. miyokoae Kosuge, 1979. Given type locality of Mactan in Bohol Straits may be in error as the species is obtained mostly from offshore, south of Mindanao Island, P.I. to the Solomon Islands.
P. orchidiflorus Shikama, 1973. No locality cited.
= *P. cerinamarumae* Kosuge, 1980 found at Cebu, Bohol Str., P.I.
P. patagiatus (Hedley, 1912). Queensland and tropical east Australia.
P. pellucida (Reeve, 1845). SE Japan to the Philippine Islands.
P. phaneus (Dall, 1889). Off Charleston, South Carolina to Cuba.
P. phyllopterus (Lamarck, 1822). Martinique, Caribbean Sea.
P. vespertilio Kira, 1959. Southeastern Japan (100-200 m).
?*P. xenos* Harasewych, 1982. Discovery Bay, Jamaica (60 m).

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These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC.

Dues for all members are due and payable for the fiscal year beginning Sept. 1st. Full membership $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of NOTES per family. Corresponding membership $5.00 per year in U.S.A., $6.50 overseas. A limited number of back issues of the NOTES are available $.65 postpaid per single copy; also bulk rates. Items and articles for publications in the NOTES should be sent to the Editors. The Corresponding Secretary should be notified promptly of any change of address.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 419, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETINGS: SUNDAY, DECEMBER 11, 1983, at 2:00 p.m.

SUNDAY, JANUARY 8, 1984, at 2:00 p.m.

SUNDAY, FEBRUARY 12, 1984, at 2:00 p.m.

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NOTICE: WE NOW MEET IN ROOM 419.

Since you may have missed the announcement at the top of this page, we remind you that the New York Shell Club has had a change of meeting room, from 426 to 419. Use the same bank of elevators as before (Central Park West) to the 4th floor, but on emerging from the elevators turn LEFT, as far as one can go. There is a sign to the effect that there are no further exhibits beyond this point at the right turn to 419. This is the home room of the American Microscopical Society, with a library and permanent displays of old 'scopes etc. It is a pleasant room — see you there?

ANNUAL DUES ARE PAYABLE EACH SEPTEMBER

For more than thirty years our members received individual notices when their annual dues were due. Perhaps many of you may have forgotten that this was changed last year for the more efficient arrangement of having all dues payable in September, and with this arrangement the individual notices were deemed unnecessary.

If you are one of those who neglected to pay your annual dues in September, please remit them to our treasurer, Mrs. Theta Lourbacos, 66 West 94th Street, Apt. 20-C, New York, New York 10025. Full membership is $6.50 per year, with $2.00 additional for each of other members of the same family. Corresponding membership $5.00 per year in U.S.A., $6.50 overseas.

Our treasurer advises that this issue is the last to be sent to members who remain in arrears. Don't let this happen.

HIGHLIGHTS OF THE SEPTEMBER MEETING

President Monique Caubere reported that she has requested permanent assignment to Room 419, which is the "home room" of the American Microscopical Society. She asked for affirmation from those present, since the room is tucked away out of the Museum's traffic pattern. Approval was expressed. Frank Nelson suggested posting a sign on the door of Room 426 on meeting days. Monique agreed, and said she would also put a sign in the rotunda, and inform the information desk of the change.

Walter Sage, who joined the Museum staff starting June 13, was introduced. He responded with some observations on his present work in the Department of Invertebrates: There is a backlog of acquisitions, among them Bill Old's collection. Bill's Cone collection is believed to be complete. His books also came to the Museum. The department also has 48 boxes of shells donated by Kay Vaught, who had lived in West Mexico and then moved to Arizona. Walter had been delegated to go to Petaluma, California in late August to pack the collection left to the Museum by the late Ray Summers, a specialist in Cypraea. This collection is not organized, and will require a lot of work. Walter said that he will be happy to take the Club on a tour of the department, at a future meeting.

Mathilde Weingartner reported on the annual meeting of the American Malacological Union in Seattle, showing slides that she had taken.

The major program item was a slide show on microshells made available by the Jacksonville Shell Club. The program, assembled by June Dawley and Harry G. Lee, includes a script, which was read by Monique. The shells shown were collected mostly in northeast Florida, and at depths of about 150 feet. Most of the tiny specimens are in the families Vitrinellidae and Caecidae. Frank Nelson noted that there is a good collecting spot for microshells near Cape May, New Jersey, at Pease's Beach.

Milton Werner, Rec. Sec'y

HIGHLIGHTS OF THE OCTOBER MEETING

President Monique Caubere and Vice President Mary Anne Bastek urged members to make presentations based on their own travels and shelling experiences. Ed Cowles volunteered to speak at the November meeting on shells in pre-Columbian art.

The speaker for the day was Walter Sage. He opened his presentation by noting that Bill Old's books, except for shell books, will be auctioned, and the proceeds will go into his memorial fund. Walter then gave an overview of his association with shells, and the trail that led him to his present position. He became interested in shells when he was 13 years old, handling them in a school handicraft class. He started buying shells, and when he learned of the Louisville Conchological Society he joined and proceeded to learn everything he could. He held every office in the Louisville club except treasurer. He first attended an AMU meeting in 1973 and shared a room with Dr. Clench. He later worked with Dr. Abbott, and it was he who suggested that Walter apply for the position left vacant when Bill Old died. Walter noted that he has been asked to judge Florida shell shows. He suggested that mini-shows might be a way to generate interest in the Club, adding that all members should be willing to offer suggestions and improvements. Walter's talk elicited comments and questions throughout.

Walter had on display a number of books of interest and utility to the collector, and series of examples of _Cypraea stolida_ and _Cypraea chinensis_, along with maps, showing their geographic variations.

Milton Werner, Recording Sec'y

AMU 1983

The 49th meeting of the American Malacological Union, which I attended as the delegate from the New York Shell Club, was held at the University of Washington in Seattle, August 7th - 13th. The meeting was sponsored by the Pacific Northwest Shell Club and the Western Society of Malacologists.

Our hosts were helpful in many ways. On our arrival in Seattle we were given transportation to the University, where we were greeted by the welcoming committee and given a packet of local shells. That evening (Sunday) we were guests at a fine reception sponsored by AMU President Alan J. Kohn and the Pacific Northwest Shell Club.

Attendance at the meeting was approximately 200. However, to me it was dissappointing that so few of the northeastern contingent were present. Besides myself, from the New York Shell Club, there were only Bill Emerson, and Julie Compitello.

President Kohn planned the program to include three symposia: one on molluscan nerve cells, one on molluscan extinctions, and one on avian molluscivores. Aside from the symposia, there were seventy-three contributed papers on all phases of malacology plus publications, computerization, etc.

On Tuesday afternoon there was an excursion to the store and museum of Tom Rice at Port Gamble, which is at the northern end of the Kitsap Peninsula. The other establishment that was here was a large lumber mill which had been founded by migrants from Machias, Maine, and had been in business ever since the early 1800s. Because this large business was here, there was no way for us to get to the beach for any collecting. Believe me, I tried.

The following day there were three field trips: one for fossil molluscs, one for marine molluscs, and one for terrestrial molluscs. I attended the one for marine shells. We were taken to a bay north of Seattle, in Puget Sound, which was famous for the Chitons which existed on a wet, slippery set of ledges. Since I was no longer able to climb around on such a terrain, I thought I could maybe find some shells along the beach. However, this was futile; there just were no shells among the pebbles, on the seaweeds, or in the sand. That evening there was the William E. Old Memorial Auction, held for the benefit of the Symposium Endowment Fund of the AMU and the Western Society of Malacologists. I purchased a small collection of shells from the Vancouver, B.C. area.

On Friday an early evening boat ride from Lake Washington through a canal and a lock brought us to an Indian reservation on the Kitsap Peninsula, where at Kiana Lodge we were served our fine banquet of salmon. I thought maybe I could collect some shells as we walked along the beach from the boat landing to the lodge. But there was a retaining wall, and if I had jumped down to the beach I would not have gotten back up again. However, the area was beautifully landscaped, and I feasted my eyes on the many fine flowers.

For Saturday, August 13th, after the formal sessions, there was a dredging trip scheduled at Friday Harbor Laboratories. I did not take part in this, but sailed on to Alaska and lots of rain.

Mathilde P. Weingartner

P.S. Thank you, New York Shell Club, for sending me as your delegate.

M.P.W.

AMU 1984

The president of the American Malacological Union for the coming year, Dr. Robert Robertson of the Academy of Natural Sciences of Philadelphia, has arranged for the 1984 meeting to be held in Norfolk, Virginia, Sunday, July 22nd through Friday, July 27th. He writes: "I hope to make the Norfolk meeting of great interest both to professionals and amateurs ... (with) a symposium or a series of workshops of interest both to systematists and amateurs. ... Talks contributed by amateurs are welcome! Exhibits and posters are welcome!"

Running concurrently: The (International) Symposium on the Physiological Ecology of (Nonmarine) Molluscs organized by Dr. W. D. Russell-Hunter, Dr. Albert J. Burky, and Dr. Robert F. McMahan.

Dr. Robertson notes that areas suitable for field trips out ot Norfolk include the outer coast, Chesapeake Bay and its marshes, the Great Dismal Swamp, and the Kenneth E. Rice Memorial Museum and Fossil Pit at Hampton.

We expect to have more details for our next issue of NOTES. Meanwhile, it is not too soon to circle the dates — July 22 - 27 — on your new calendar.

dr

Editor's note: Bill Old's first contribution to these NOTES was a report of his trip to the Pacific Northwest, the area of last summer's AMU meeting at which was held a William E. Old Memorial Auction. Bill's report appeared in the September 1961 issue of NYSC NOTES No. 74 on pages 3 and 4. We reprint it here:

dr

SHELLING IN THE SAN JUAN ISLANDS WITH THE NORTHWEST SHELL CLUB

by William E. Old

One of the youngest and certainly one of the most dynamic shell clubs in the United States is the Northwest Shell Club of the Seattle area. It celebrates its first year as a club this month. (NYSC member Mrs. Dorma Coley is a charter member of the Northwest Shell Club.) When I was in Washington State last June, the club had a membership of 109 regular and corresponding members. It was an honor to be elected #110, and the first honorary member of the club. I was there to take part in their big event of the year — a week-long field trip to the San Juan Islands in Puget Sound. The trip was held the week of June 25th, when the tides reached as low as -2.8.

We had very few shells with accurate data from the Pacific Northwest in the collection at the American Museum of Natural History. It was decided that it would be a good idea for me to participate in the field trip, as we wished to build up a really representative collection of the mollusks of the Washington area. We desired material with accurate locality and ecological information. In addition, I would also collect other forms of marine invertebrates, such as echinoderms and crustaceans.

As I also planned to collect in areas adjacent to Washington State, I wrote and obtained collecting permits for Washington, Oregon and British Columbia. Collecting equipment, flattened cartons and other gear, was sent out to the coast in advance. I am indebted to Mr. and Mrs. Coley for their suggestion that I take part in the field trip, and for my transportation across country.

. . . . .

The beautiful San Juan Islands are located in the western part of Puget Sound. San Juan Island is the largest island of the group, and Friday Harbor, with a population of 900, is the largest town. The island is reached by a ferry running from Anacortes, Washington to Sydney, British Columbia.

For two hours, the ferry threads its way through the channels separating the high islands. Many of the islands with striking red-barked madrone trees growing on top of the rocky shoreward cliffs are decidedly reminiscent of southern Japan.

The members of the Northwest Shell Club arrived at Lonesome Cove resort on June 25th. Camping accommodations in rustic log cabins were set up dormitory style. Many of us went immediately to the rocky beach. The area was exceedingly rich in marine life. Large purple starfish lay about. *Fusitriton oregonensis* were engaged in laying egg capsules on the vertical sides of rocks. Purple sea urchins were abundant. Chitons were present in great numbers. *Cryptochiton stelleri* were lying in crevices or attached to the sides of rocks. Often there would be half a dozen *Katharina tunicata* on a stone the size of a football. The lovely Tonicella lineata were present in great numbers, as were Mopalia muscosa and many other species.

As I was particularly interested in Acmaea, I concentrated on collecting a series. Acmaea testudinalis scutum, persona, pelta, and digitalis were practically everywhere. Near the low tide level were large Diodora aspera. On Monday (the 26th) during a minus tide I collected large Acmaea mitra. Haliotis kamtschatkana was also taken. Trichotropis cancellata and Calliostoma ligatum were abundant.

Other participants arrived, among them well-known naturalist Mr. Walter Eyerdam of Seattle, noted collectors Mr. and Mrs. Phil Spicer of Centralia, Washington and Mrs. Lela Griffith of Egmont, B.C. who is writing a book on the intertidal gastropods of the area. Several of the NWSC members brought boxes of shells as donations to the collections of the American Museum. And during the field trip many of the club members continually brought me odd specimens of mollusks, fish, crabs or insects they found. In this way, several species I had not found were added to the collection.

The trip was marked by an air of gaiety and camaraderie. It was customary for collectors to give voice to song while preparing their catch (a forthcoming album might well be entitled "Music to Clean Shells By"). "This is really a talented group!" observed President Tom Rice. Not only could shellers be heard singing songs in English, but in Spanish, French, German, Russian, Japanese, Korean, American Indian, or Eskimo. (The September '61 issue of the "Northwest Shell News" credits this one to Bill Old: To the tune of "Sing a Song of Sixpence" ——)

Sing a song of San Juan
A bucket full of slime.
Four and twenty persons
A-shelling all the time.
When the tide came in
The shells began to sing -
"At last we're safe from those guys
Until this time next spring!"

The week ended all too quickly. . . I am indebted to the members of the Northwest Shell Club for their assistance in making my trip such a success. On arrival home I found, in addition to my own seven packages, thirteen parcels of shells from Northwest Shell Club members.

Upon unpacking and sorting, I find that we have some 300 lots of specimens to add to the museum collection.

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22 YEARS AGO

In addition to Bill's report on shelling with the Northwest Shell Club, other items reported in the NOTES of September 1961 were: The arrival of 'our' newly published SHELLS OF THE NEW YORK CITY AREA by M. K. Jacobson and W. K. Emerson. Mathilde Weingartner's promotion to Science Curator of the Staten Island Museum. The AMU Meeting at Washington, D.C. The death of Maxwell Smith.

REVIEWS:

NORTH AMERICAN FRESHWATER SNAILS

Identification Keys, Generic Synonymy, Supplemental Notes, Glossary, References, Index. By J. B. Burch, 1982. Part II, 149 pp. Walkerana #4. Price $25.00.

This second part of the larger work on North American freshwater snails (see The Littorina, March-April 1982* for a review of the first part) complements and enhances the value of the earlier published species list, ranges and illustrations. Both collectors and scientists will find the study of freshwater snails an easier task because of these books. Identification of species should be simplified by the use of the generic keys and illustrations, and the extensive list of references should facilitate research into more complex questions. The supplemental notes cover both published parts and provide clarification of some problems uncovered by the author, and offer additional information not often given in this type of identification manual.

These two small volumes totaling 284 pages and several hundred illustrations are invaluable to those interested in freshwater snails. The complete contents of both parts is now available as an illustrated manual from the Cincinnati office of the Environmental Protection Agency. This manual can be ordered from National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161, at the price of $25.00. Ordering number is PB82-207168; title and EPA report number: Freshwater Snails (Mollusca: Gastropoda) of North America, 600/03-82-026. However, be advised that the complete manual at $25.00 is "xerographically reproduced."

Walter Sage

* On file in NYSC Library.

A REVISION OF THE RECENT XENOPHORIDAE

of the world and of the Australian fossil species (Mollusca: Gastropoda) by W. F. Ponder, 1983. 126 pp. Memoir 17, The Australian Museum, Sydney, New South Wales, Australia. Price $A15.

Collectors have long been intrigued by the Carrier-shells, so it is a pleasure to report on this revision of Recent worldwide Xenophoridae. The author recognizes 25 species and subspecies in a single genus, Xenophora, with three subgenera: Xenophora s.s. (with thirteen species and two subspecies), Stellaria (with five species and one subspecies), and Onustus (with four species). The shell, and radula, operculum, and anatomy where known, are described for each species. The distribution and synonymy for each species are also given. Each species is illustrated in black and white photographs; distribution maps are provided; a species list and index are included; and a list of references completes this important paper.

This contribution includes the description of a new species, Xenophora granulosa, 63 mm, from the central Indo-Pacific, and three new subspecies: X. peroniana kondoi, 43 mm, from Hawaii; X. neozelanica kermadecensis, 58 mm, from the Kermadec Islands; and X. testigera profunda, 63 mm, from the Gulf of Aden and northernmost East Africa. The taxon X. robusta from the eastern Pacific is considered a synonym of the western Atlantic X. conchyliophora. The generic taxa Tugurium and Trochotugurium, used for the western Atlantic X. caribaea and X. longleyi, have been reduced to synonyms of the subgenus Onustus. Several additional changes in nomenclature are presented. The Australian fossil species are reviewed, and a list is given of worldwide fossil species assigned to the Xenophoridae.

The author has performed a service to malacology in undertaking this research and seeing it through to a valuable conclusion. Anyone interested in marine mollusks will find this paper worth incorporating into their library.

Walter Sage

A REVIEW OF THE COLUMBARIINAE

(Gastropoda: Turbinellidae) of the Western Atlantic with Notes on the Anatomy and Systematic Relationships of the Subfamily. By M. G. Harasewych, 1983. 42 pp. Nemouria, number 27, Delaware Museum of Natural History, Kennett Pike, Greenville, Delaware 19807. Price: $2.00.

This important addition to our knowledge of western Atlantic mollusks discusses eleven species of the turbinellid subfamily Columbariinae found from North Carolina to Brazil. The author presents detailed data - anatomy, diet, radulae, and shell characters - that establish the position of this group of species as units of the family Turbinellidae, related to members of the better known genera Vasum and Turbinella.

The author states that the genus Columbarium is restricted to the western Pacific in the Recent fauna, and proposes that western Atlantic species are distributed among three subgenera of Fulgurofusus (Fulgurofusus, Histricosceptrum, Peristarium). The anatomy of Fulgurofusus (F.) brayi is described in detail. Described as new are Fulgurofusus (F.) ecphoroides, 18 mm, from Brazil; Fulgurofusus (Histricosceptrum) xenismatis, 33 mm, from Nicaragua; and Fulgurofusus (Peristarium) timor, 57 mm, from North Carolina. Each species is compared to its closest relatives, and all species are illustrated in black and white photos. A sizable list of references completes the paper.

Collectors and scientists alike will benefit from this report. The author is to be congratulated for his contribution, as is the museum for making this research available at such small cost.

Walter Sage

NEW PORTUGUESE JOURNAL

Recently a number of collectors interested in the Conidae have received the first issue of a new Portuguese publication containing seventeen new cone descriptions by Bob da Motta. The periodical is called PUBLICACOES OCASIONAIS DA SOCIEDADE PORTUGUESA DE MALACOLOGIA. Information at the following address: Publicacao da Sociedade Portuguesa de Malac', Edicao e Propriedade da S.P.M., Redaccao e Administracao, Aquario Vasco da Gama (Dafundo), 1495 Lisboa, Portugal.

From: LEVANTINA No. 42, p. 497, Feb. 1983
Publication of the Israel Malacological Soc.

17 + 1 = 18 NEW CONES

Shortly after describing 17 new Cones in the publication of the Portuguese Malacological Society (see preceding article), A. J. (Bob) da Motta named an 18th new Cone in the March-April 1982 issue of *Carfel's Philippine Shell News*. We learn this from the *Hawaiian Shell News* Vol. XXX No. 7, July 1982 where on Pages 1 and 10 is listed all 18 new Cones, each with an abbreviated, sometimes paraphrased, but quite satisfactory description. Of the 18, some are re-named, some are described as new. *HSN* informs us that "The collaborating authors are Taizo Ninomiya of Tokyo, Manfred Blocher of Duisburg, West Germany and Dr. Dieter Rockel of Darmstadt." and "In his introduction to the descriptions, da Motta revealed that the proposed new taxa 'result directly from the research process undertaken in the course of an in-depth review of the *Conus textile* complex' carried out by da Motta, the results of which have appeared in a series of articles in *La Conchiglia/The Shell*."

We list the 18 proposed new species and subspecies, and the species of *Conus* to which each is compared in the descriptions, as they appear in the above named issue of *Hawaiian Shell News*.

	Proposed taxa	Species used in comparison
1	*Conus episcopatus* da Motta	*magnificus*, *pennaceus*, *aulicus*
2	*Conus auratinus* da Motta	*auratus*, *a. aurantia*, *auricomus*
3	*Conus quasimagnificus* da Motta	*magnificus*, juvenile: *pennaceus*
4	*Conus textile neovicarius* da Motta	as a substitute for *C. vicarius* of authors
5	*Conus textile dahlakensis* da Motta	*textile* (subspecies apparently endemic to Dahlak islands)
6	*Conus rubropennatus* da Motta	*omaria*, *pennaceus*, *canonicus*
7	*Conus patonganus* da Motta	*omaria*
8	*Conus skinneri* da Motta	*nobilis*, *corigera*, *victor*
9	*Conus krabiensis* da Motta	appears to be dwarf of *generalis*
10	*Conus kantanganus* da Motta	: *longurionis*, *aculeiformis*
11	*Conus samiae* da Motta	*batheon*, *bocki*
12	*Conus fulvobullatus* da Motta	*bullatus*
13	*Conus gabelishi* da Motta & Ninomiya	*suturatus*, *infrenatus*
14	*Conus orri* Ninomiya & da Motta	*africanus*, *mercator*
15	*Conus gracianus* da Motta & Blocher	*aulicus*
16	*Conus lenavati* da Motta & Rockel	*sugimotonis*, *tribblei*
17	*Conus garciai* da Motta	*cingulatus*, *cancellatus*
18	*Conus rogmartini* da Motta	*adonis*, *raoulensis*, *floridulus*

LIVING SEASHELLS

by Scott Johnson. Oriental Publishing Co., Honolulu, Hawaii. 117 pp., 235 color photographs. Price: $9.00.

The increasing number of books for collectors and students of mollusks has provided us with identification guides and faunal lists, introductory texts and compendiums, but only occasionally do these volumes illustrate the living mollusks in their natural habitats. Scott Johnson, a diver and student of mollusks, has attempted to remedy this situation and has illustrated in full color approximately 240 species of gastropods, bivalves, and Chitons from Indo-Pacific waters, mainly from Hawaii and Micronesia. The illustrations are grouped by family, with the author giving comments about the species pictured. The scientific name, common name where established, and the size of each mollusk is provided.

In accomplishing his aims of showing a selection of living shells in their habitats and encouraging appreciation of the living animals, the author begins with brief discussions of molluscan distribution and the animal, and ends the volume with a list of references, an index to species photographed, a discussion of camera techniques, and a statement on conservation.

This reviewer finds this soft cover volume a worthwhile addition to molluscan literature, and notes that after searching elsewhere in vain, he was able to find in this book photos of Cypraea moneta and C. annulus with their distinctive mantles expanded. Unfortunately, not all Cypraea species illustrated have their mantles fully expanded, a feature that collectors, usually unable to see the living mollusks, would have appreciated. However, in photographing living animals the behavior of the subject cannot always be anticipated.

There are relatively few errors in the book — those noted include the word "autonomize" instead of "autotomize" on page 9; "Cassididae" instead of "Cassidae" on page 46; "Homolocantha" instead of "Homalocantha" on pages 52 and 53; and "pectins" instead of "pectens" on page 100. These minor imperfections hardly detract from the book's value, and all interested in mollusks are encouraged to add this inexpensive book to their libraries and expand their knowledge of these most interesting animals.

Walter Sage

OBSERVATIONS ON THE SYSTEMATICS AND BIOLOGY OF A TURRID GASTROPOD ASSEMBLAGE IN THE BRITISH VIRGIN ISLANDS

by Virginia O. Maes. A Coral Reef Paper in the Bulletin of Marine Science, Vol. 33, No. 2, pp. 305-335, April 1983.

In the introductory paragraphs of her typically thorough study of eight species of turrids collected at Guana Island in the British West Indies, Mrs. Maes remarks that, "In the past, systematics of the family Turridae has been based largely upon shell characters." She points out that in order to place them properly in their systematic position the anatomy, feeding and reproduction must be known. This is the subject of the study.

In addition to the descriptions and discussions in the text, there are charts comparing shell characters, feeding-related characters, reproduction-related characters, radular characters, and miscellaneous soft-part characters. There is a map and a number of figures. There are excellent photographs of the shells, of their protoconchs, and of their radulae. The paper will interest anyone interested in malacology in general as well as those interested in the Turridae in particular.

Collectors will recognize some of these beautiful little shells as frequently found in Florida. We refer to the paper in listing the eight species studied, ranges, and genera in which they were formerly placed:

	Formerly:
Drillia cydia (Bartsch, 1943) North Carolina throughout eastern Caribbean	*Neodrillia cydia*
Strictispira paxillus (Reeve, 1845) Cuba and eastern Caribbean to Brazil	*Pleurotoma paxillus*
Pyrospira candace (Dall, 1919) Eastern Caribbean	*Crassispira candace*
Buchema interstrigata (E. A. Smith, 1882) Puerto Rico, eastern Caribbean to Brazil	*Pleurotoma interstrigata*
Crassispira apicata (Reeve, 1845) Puerto Rico and eastern Caribbean to Venezuela and Brazil.	*Pleurotoma apicata*
Crassispira pellisphocae (Reeve, 1845) Virgin Islands, eastern Caribbean to Tobago and the Netherlands Antilles	*Pleurotoma pellisphocae*
Pilsbryspira albomaculata (Orbigny, 1842) Florida to Guadeloupe	*Pleurotoma albomaculata* *
Pilsbryspira leucocyma (Dall, 1883) Florida, Gulf of Mexico, Caribbean to Panama and Brazil	*Drillia leucocyma* **

* Also "*Crassispira*" in Abbott, 1974.

** Also "*Crassispira*" in Abbott, 1974; "*Monilispira*" in Emerson and Jacobson, 1976.

Dorothy Raeihle

BOOK BARGAINS from AMERICAN MALACOLOGISTS, INC.

P.O. BOX 2255, MELBOURNE, FLORIDA 32901

Dr. Abbott tells us that his AMERICAN SEASHELLS, 2nd edition, will soon be out of print but that he has the last of the supply. Ordinarily $60.00, it may be obtained (autographed to the purchaser) for only $36.00 plus $2.00 postage.

Also available is the last of the supply of Olsson and Harbison's PLIOCENE MOLLUSCA OF SOUTHERN FLORIDA (bound, 1953, 457 pp., 65 pls, reprint). Ordinarily $39.00, now only $19.95 plus $1.05 postage.

COMPENDIUM OF SEASHELLS, by Abbott and Dance, 1983, is now priced at $39.00 plus $1.50 postage. For numbered and autographed copies the price is $50.00 plus postage.

Special bargains — 50% to 60% off list price (add $1.00 postage):
SEASHELLS OF WESTERN EUROPE, by Bouchet. 156 pp. $4.00
SHELLS ON STAMPS OF THE WORLD, by Arakawa. 234 pp. $6.00
FRESHWATER SNAILS OF AFRICA AND THEIR MEDICAL IMPORTANCE. $28.00
INDEX TO THE NAUTILUS, volumes 1 - 90. 250 pp. $12.00
GUIDE TO THE NUDIBRANCHS OF CALIFORNIA. 64 pp., 112 pls. $6.00

Florida residents should add sales tax to all orders.

SHELLING IN THE HAIFA AREA

Mike Fainzilber
P.O. Box 6012, 3160 Haifa, Israel

The interesting area of Haifa, shellwise, is a 5 km stretch of rocky reefs, starting from the Carmel Beach in the south to the Bat-Galim area in the north. South of this stretch are the main bathing beaches - mostly a sandy desert, and north of it the port area. On the map accompanying this article the area discussed is between nos 1-5. Shikmona "south" (no. 1-3 on the map): Rocks jutting out into the sea and forming small tide pools at low tide. Reef extends to a depth of 4-5 meters. Excellent place for *Conus ventricosus* (in the seaweed), *Thais haemastoma* (on sides of rocks just below waterline) and very many smaller species in the tide pools. On the supra-littoral rocks there is a large population of *Patella caerulea*, various *Littorina* and *Monodonta* species. It is best here to snorkel in the shallow water, or at low tide just to walk on the rocks and search the tide pools.

Shikmona "center" (no. 3-4 on map): short stretch of shellsand beach just south of the Oceanographic Institute. The micro enthusiast can collect 1-2 kg of shellsand and will find hours of head-scratching ahead of him attempting to identify the shells.

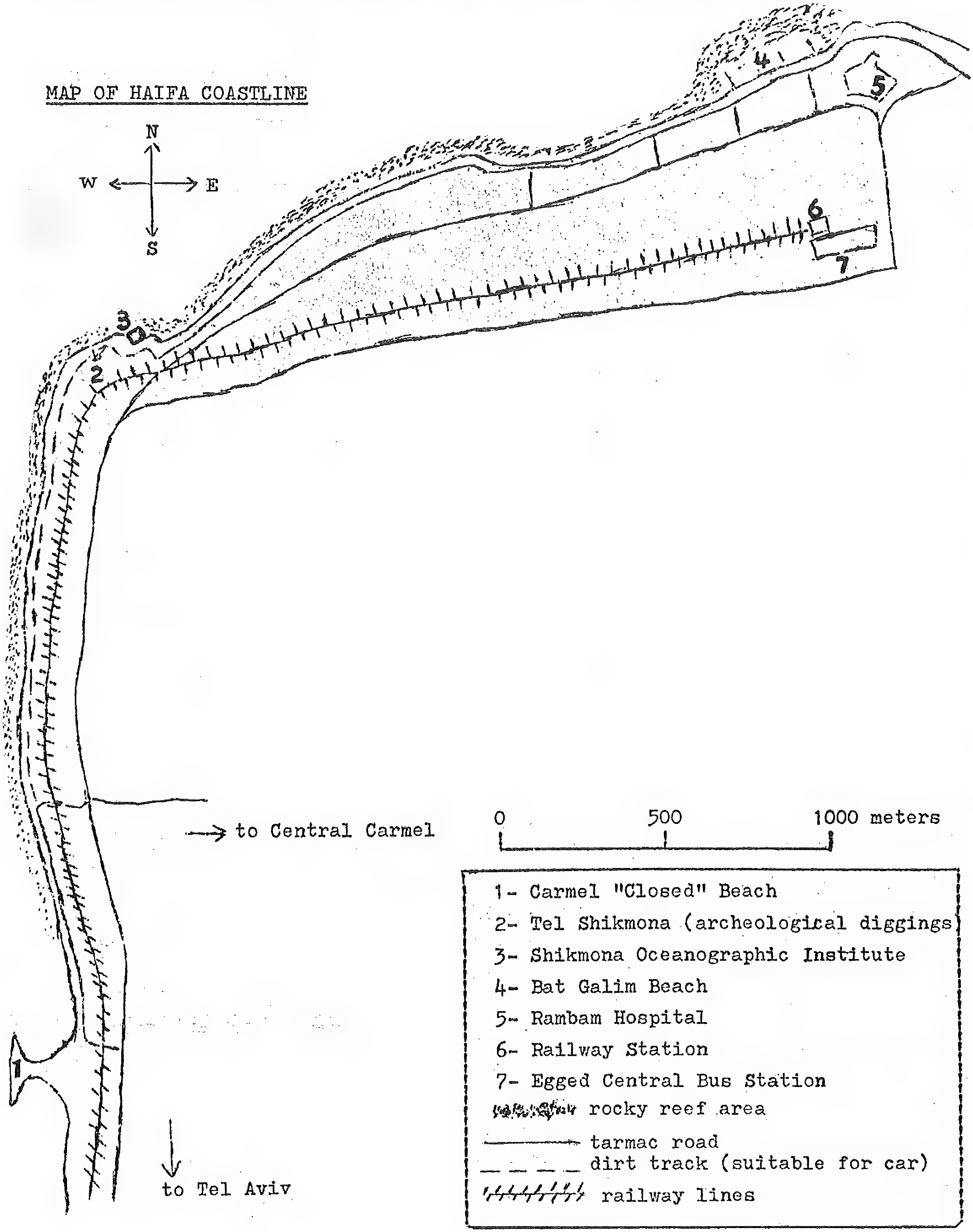
Shikmona "north" (no. 3-4 on map): shallower and flatter reef than the southern area, heavily overgrown with seaweed. Very large colony of oysters (mostly *Ostrea edulis*) at up to 2 m depth, also interesting variations of *Conus ventricosus*.

Bat-Galim (no. 4 on map): Going into the water from the public beaches at this spot, one finds many species in shallow water rock crevices. Swimming further out at a distance of 100-200 meters off shore and at a depth of 4-10 meters there is a rock area. This is the place the late Kurt Geisel called his cowry farm. Kurt would usually come back from a dive here with a few *Cypraea spurca*, *C. lurida* and rarely also *C. pyrum*. Because of the depth it is suitable mainly for SCUBA divers or excellent snorkellers.

To sum up, in four years of collecting in this area I have found between 50 and 100 species of shells, of which about 30 to 40 can be collected in shallow water by anybody. The coast is polluted with tar, but that is the only problem and should not discourage the serious sheller.

From LEVANTINA No. 43, April 1983
Pub. of Israel Malacological Soc.

MAP OF HAIFA COASTLINE



FLYING AFTER DIVING?

The following paragraphs are reprinted from SEA SECRETS, 27(4): 3, July-August 1983, published by the International Oceanographic Foundation, Miami, Florida.

QUESTION: I occasionally fly to the Caribbean and scuba dive. After scuba diving, how long should I wait before flying home?

ANSWER: There are a number of popular "rules" regarding flying after diving. Some agencies recommend using high-altitude no-decompression limits or cross-connection tables when planning dives before flying. Other agencies use the so-called D-group rule, under which a diver has a surface interval sufficient to put him or her into repetitive group-D before flying.

Recent U.S. Air Force/Navy/Army tests on flying after diving, however, found bubble formation in spite of dive profiles that would have been approved under the above rules. Until further research is completed, therefore, it is strongly suggested that sport divers follow the U.S. NAVY DIVING MANUAL's recommendation of a 12-hour surface interval following any nonsaturation scuba dive before flying in a commercial aircraft or unpressurized private aircraft above 3,000 feet. One last dive is not worth getting the bends.

MARINE BIOTECHNOLOGY CENTER AT HARBOR BRANCH

J. Seward Johnson, Jr., Harbor Branch Foundation, Inc. president, is establishing a new institution called the Center for Marine Biotechnology, located at the Fort Pierce, Florida research facility, and has named algologist and aquaculture specialist Dr. John H. Ryther as director.

Dr. Ryther, while still a senior scientist at Woods Hole Oceanographic Institution in Massachusetts, spearheaded the Harbor Branch Foundation aquaculture program on a part-time basis for years. It was he who gradually built the project into a major aquaculture research department.

The Center for Marine Biotechnology now incorporates outdoor ponds, tanks and aquaria; a new building that houses wet labs and offices; and greenhouses that will lend themselves to year-round culture of marine plants and animals.

In a project of primary concern, scientists will be looking at the biologically active compounds found in marine algae, and to some extent in marine invertebrate animals, that can be used in pharmaceutical and agricultural industries. A number of compounds already isolated by others have been shown to have potential value as drugs, such as antiviral and antibiotic compounds, and compounds that can be used in human cardiovascular, muscular and anti-tumor applications. Organisms such as seaweeds, molluscs, and some coral and sponges produce these compounds, and researchers will be trying to identify and separate the biologically active components, test them against human disease organisms and conditions and learn as much as possible about how, when, where and why the marine organisms produce and store these compounds.

From: SEA TECHNOLOGY, August 1983, p. 79.

ALL PENNED UP?

Joe C. Hayes

What member collects Pen Shells? I do not know of one nor do I remember that we ever had a lecture on them. It would seem appropriate, then, to dole out a little information about them if only to see whether it would call for more later.

The Pinnidae are worldwide in distribution and are important to many of the world's peoples. They are edible. For centuries they have been esteemed by the Japanese, some Polynesians, and Mexicans at some points along their Pacific coast. Europeans claim they have to be cooked to long and even then remain tough. Pilsbry and Lowe said they tasted like the giant scallops and others have agreed with them. In any case, wherever they are appreciated as food, the meat was extracted by using a hook on a stick, a barbed spear rammed through the shell.

The byssus, historically, is the most famous Pen Shell product. Its fine fiber, soft but quite strong, is produced by the foot to anchor the shell. In some shells [particularly the Giant Mediterranean Pen (40 cm), Pinna nobilis Linné — Ed.] the fibers are long enough to be woven into small garments or combined with silk for larger ones. It has a beautiful golden bronze sheen and in the earlier centuries A.D. only the ruling classes were allowed to wear cloaks woven from byssus fibers which were very durable so long as moths were kept away from them. There are many legends about the fibers, one being that Jason's Golden Fleece was really made from byssus "wool."

It is an interesting note that the name "byssus" was given to holdfast fibers of the Pen Shell through the accident of an incorrect translation: two Greek words were confused, one meaning depth (of water), the other meaning fine vegetable fibers. In 1476 Gaza picked the "deep" meaning. It has been argued ever since but not changed.

All Pen Shells produce pearls, more often irregular ones, but perfect ones can be valuable. Grave reported in 1923 that one in five specimens he collected yielded black, smooth, spherical pearls, many of which were suitable for jewelry. But Hass said in 1955 that the prisms in Pinna pearls are radially arranged, not concentric as in other pearls, and that they have a lot of organic matter between the prisms which lets them fracture easily and thus have a short life and low value. Yet others have said that pearls produced in the anterior end where the mantle lays down nacreous material whould be both fine and durable.

My own collecting of Pinna is confined to a single specimen from the back side of Sanibel Island where I stumbled into a bed of them only four feet down in murky water and upended to collect by "feel," the result being that I lost part of the byssus. One day I shall go again with equipment to get my complete specimen.

If you want to try for your own fine specimen you will have to know that you are not apt to find a Pen Shell, live or dead, that will be "clean." They have smaller creatures that live with them, on them, and inside them. It is a fair bet that you can find more than a dozen different live animals on any Pinna, maybe including barnacles, tube worms, tunicates, brittle stars and algae. A little crab, Pinnotheres (Pinna Guardian), lives inside Pinna's mantle cavity, also a small shrimp. All told, about 25 different creatures are found to have "an association" with Pinna as their host. Pinna gives, but gets nothing in return.

References

Turner, Ruth D. and Joseph Rosewater. The Family Pinnidae in the Western Atlantic. Johnsonia, Vol. 3, No. 38, 1958.

Rosewater, Joseph. The Family Pinnidae in the Indo-Pacific. Indo-Pacific Mollusca, Vol. 1, No. 4, 1961.

From: the Newsletter of the National Capital
Shell Club, No. 74, p. 13, Autumn 1983

ANOTHER NOTE ON PEN SHELLS

The above story by Mr. Hayes reminded us of the first and only time we came across a bed of live Pen Shells. It was so many years ago that I can't remember the date — but the tide was low and we were wading in perhaps ten inches of water over a sandy/muddy flat at the edge of Sarasota Bay in Florida. The area was in sight of the abandoned, unfinished Ringling Hotel. The late afternoon angle of light suddenly illuminated the bottom and showed the many protruding pairs of valves, slightly agape, of the Stiff Pen Shell, Atrina rigida. We tried to dig one out; the byssus was around some stones pretty deep down.

We've found that dead and empty Pen Shells cast ashore frequently shelter small mollusks, some still alive as was one juvenile Murex that lived for a year in our aquarium. But most of the little Chitons were dead.

As for cleaning a Pen Shell, use only patience. Pen Shells are composed of prismatic crystals held together by conchiolin, an organic material. Soaking in a Chlorox solution dissolves the organic matter and one is left with only powdered "shell" in the bottom of the container.

The late Maude Nickerson Meyer of Captiva served the marinated muscles of these Pen Shells as hors d'oeuvres and otherwise treated them as she would scallops. Perhaps Atrina rigida is more tender and flavorful than the European species?

Dorothy Raeihle

BETTY ALLEN

We regret to report the death on September 10th of Betty Allen (Mrs. Lawrence K. Allen) of Port Isabel, Texas. She was 71 years of age.

Betty became a corresponding member of the New York Shell Club in May, 1966. She was the proprietor of the "Shop of the Seven Seas" and was well known among our associates. She was co-founder of the South Padre Island Shell Club and made substantial contributions to the Houston Museum of Natural Science. She will be missed.

A NEW HOMALOCANTHA FROM EILAT

In the October 1982 issue of the Belgian Malacological Society's publication, "Informations", Roland Houart describes a new species of Homalocantha (Neogastropoda, Muricidae) from Eilat, Red Sea. The new species was named after the Haifa shell collector, Dov Peled, and is the fifth shell to be named in Dov's honour. The new species is Homalocantha dovpeledi Houart, 1982.

H. dovpeledi is a medium sized shell for the genus; colour ranges from light to rusty brown with darker spines. The new species was compared to H. zamboi Burch & Burch, 1960. H. zamboi is more elongate, has two spines per varice as opposed to three per varice in the new species, has different colour (zamboi is always white), different sculpture around the aperture and a different protoconch.

H. dovpeledi was also compared to two other Red Sea species — H. digitata (Sowerby) and H. scorpio (Linné). Digitata has a larger, more massive shell and differs in number of varices and spines. Scorpio differs mainly in number and shape of spines, also in number of varices.

The type locality is Eilat, 45 meters deep on sandy bottom. The holotype has been deposited in the British Museum (Natural History) and its measurements are 40.8 mm x 38.5 mm. There are four paratypes — three in the Houart collection, sizes 49 x 49 mm, 36.5 x 35.5 mm, 34 x 36 mm, and one in the Dov Peled collection in Haifa, measuring 52.5 mm x 44.5 mm.

The full description of Homalocantha dovpeledi (in French) was published in "Informations de la Societe Belge de Malacologie." Series 10, No' 1-4, October 1982. The author is Mr. Roland Houart, St. Jobsstraat 8, B-3330 Landen (Ezemaal), Belgique.

From: LEVANTINA No. 42, p. 494, Feb. 1983
Publication of the Israel Malacological Soc.

▶ PLEASE MAKE THIS CORRECTION

In our last issue of NOTES, No. 288, September 1983, on page 13, we made a very serious error and omission in transcribing the article THE GENUS PTERYNOTUS by Anthony D'Attilio and Barbara W. Myers.

The correction is given below, and we suggest that you cut on the lines and attach the corrected text, which is spaced to fit the entire heading. Our apologies.

THE GENUS PTERYNOTUS SWAINSON, 1833 (MURICIDAE: MURICINAE)

by Anthony D'Attilio and Barbara W. Myers, Dept. Marine Invert.,
San Diego Nat. Hist. Museum, P.O. Box 1390, San Diego, CA 92112

SUBFAMILY: Muricinae Rafinesque, 1815

GENUS: Pterynotus Swainson, 1833. Type by subsequent designation Murex pinnatus Swainson, 1822 (=Purpura alata Röding, 1798)
Marchia Jousseaume, 1880. Type by original designation Murex clavus Kiener, 1843 not M. clava Gmelin, 1791 nor M. clavus Michelotti, 1841 (=M. elongatus Lightfoot, 1786)

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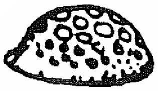

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The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 419, AMERICAN MUSEUM OF NATURAL HISTORY,
excepting April (See below.).

NEXT MEETINGS: SUNDAY, MARCH 11, 1984, at 2:00 p.m.

SOLAR ECLIPSES AND SHELLING IN THE PACIFIC
by Bruce Einsohn. A slide presentation.

SUNDAY, APRIL 8, 1984

ANNUAL SOCIAL AND AUCTION to be held at the
Broadway Dance Studio, Astoria (See Page 2)

SUNDAY, MAY 13, 1984, at 2:00 p.m.

MARGINELLAS. A slide presentation
by Nick Katsaras.

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NEW YORK SHELL CLUB ANNUAL SOCIAL AND AUCTION

DATE: SUNDAY, APRIL 8, 1984

TIME: Action will begin at 2:00 p.m.
Doors will open at 1:00 p.m. so that donations and supplies may be brought in and set up.

PLACE: BROADWAY DANCE STUDIO (Directions below)
31-08 BROADWAY
ASTORIA, QUEENS, N.Y. (Phone 212:274-1503)

DONATION AT THE DOOR: $2.00 per person, members and their guests.

ACTIVITIES:

AUCTION

BARGAIN TABLE - RAFFLE - DOOR PRIZE(S)

WINE + CHEESE + SNACKS + PUNCH + MUNCHIES + COFFEE + CAKE

TO MAKE OUR PARTY A SUCCESS

We NEED your help. Make this your house-cleaning time for thinning out those extra shells you collected last year, and donate them to our auction and/or bargain table. And not just shells — any shell-related item (literature, etc.) and shelling aid (look-box, screen, etc.) will be welcome. Remember that that never-used, taking-up-room item may be another's treasure.

You had a great time at last year's party. Let's do it again! In addition to auction materials you brought homemade cakes, snacks and salads and we look forward to more of the same.

The $2.00 donation at the door is to pay for the basic expenses of table and chair rentals and basic supplies. We again thank Dorothy Jensen for donating the use of her studio.

At this writing, there is the possibility of a surprise presentation.

Profits (if any) permitting, we may be able to add to the William E. Old Memorial Fund.

COME, AND BRING A FRIEND!

DIRECTIONS: The studio is on the second floor of the building, SW corner of Broadway and 31st Street. From Manhattan: B.M.T. ASTORIA line to BROADWAY, or I.R.T. FLUSHING line to QUEENSBORO PLAZA and transfer to the B.M.T. ASTORIA line thence to BROADWAY. Travelling from Jamaica: IND to ROOSEVELT AVENUE, transfer to I.R.T. FLUSHING line to QUEENSBORO PLAZA, transfer again to B.M.T. ASTORIA train.

BY CAR: QUEENSBORO BRIDGE to NORTHERN BOULEVARD to 31st STREET, left on 31st STREET (under the Elevated) to BROADWAY. Or: TRIBORO BRIDGE to the first exit in Queens, turn right under the Elevated along 31st STREET to BROADWAY. From LONG ISLAND: GRAND CENTRAL PARKWAY to the last exit before the Triboro Bridge, go a short distance along ASTORIA BOULEVARD to 31st STREET, TURN LEFT under the Elevated to BROADWAY — about six blocks.

HIGHLIGHTS OF THE NOVEMBER MEETING

In the absence of the president and vice president, past president Ed Cowles called the meeting to order.

Mathilde Weingartner presented a book report on "Naturalist at Large," written early in the century by Thomas Barbour. She read from it an excerpt on Liguus, concerning their ecology, distribution and variations. The author, realizing that many of the hammocks on which they were found would eventually be destroyed by cultivation, set out to collect a representation "from every hammock within the limits of their distribution." He does not say whether complete success was achieved, but noted that his collection reached a total of 43,235 shells from 490 localities.

Nick Katsaras read from Hawaiian Shell News an article reporting how a member of the Hawaiian Shell Club, traveling in Djibouti, had bought there thirteen shells for $50.00. One was a Cymatium ranzani measuring 230 mm, and five were Conus milneedwardsi, measuring 90 to 123 mm. The last, and the Cymatium, are each valued at $2,500.00.

The speaker was Ed Cowles, whose subject was "Shells in Pre-Colombian Art." He accompanied his talk with slides showing book illustrations, carved shells, a mask inset with Haliotis chips, a Lyropecten nodosus valve inset with gold nuggets, ancient statues, pre-Toltec and Mayan temples, and the Museum of Anthropology in Mexico City, including tapestries and murals. The last categories were further illustrations of the prevalence of shells in Central America's pre-Colombian cultures. Most of the excellent photographs were taken by Ed.

Milton Werner, Recording Sec'y.

HIGHLIGHTS OF THE DECEMBER MEETING

President Monique Cauber's plan for the meeting was to utilize the information, talents, etc. of the members present which they could share with each other.

Nick Katsaras reviewed the history of the New York Shell Club in the persons of the past presidents, and their terms of office. In the thirty-four-year history of the club there have been sixteen presidents, of whom thirteen are living. Unfortunately we have lost George Jacobs, Karl Jacobson, and Bill Old.

Mathilde Weingartner read a letter from a collector in Florida to whom she had lent a club pin and other material for an exhibit he was preparing of the emblems of shell clubs around the world. His display eventually contained material from more than 170 clubs. As a gift to Tillie for having kept her loan material for so long he sent her a very unusual specimen of Pholas costata, with a pink-shaded interior, live-collected at St. Petersburg, Florida.

Frank Nelson spoke about several "mysteries." A Cypraea pantherina was found associated with the remains of a female human in a grave site at Sutton Hoo in England, the other materials in the grave being dated as about 6,000 years old. How did a Red Sea shell find its way to prehistoric England? Also, an article in a Russian journal of some years ago showed a photograph of a "necklace" (?) found in a burial site in Central Siberia. The artifact was made up of a number of fossil Turritellas which had been drilled through the body whorl, and they were found in a position that suggested that they had indeed been strung. The nearest site from which the fossils were likely to have come from is many hundreds of miles distant from the burial site.

Monique showed an interesting group of common shells which, by virtue of color, shape or pattern, made them more than ordinarily interesting. They were *Turbo reevei* and *Cypraea tigris* of many colors and forms. A collection of these varieties could be assembled at little expense.

Theta Lourbacos spoke about a trip to the spoil islands off the Texas Gulf Coast. These islands are built up from the dredgings of the ship canal. She collected a sandwich bag of small shells from one of the islands and brought them in for the members to see and enjoy. Many of the members must have wished that Theta's appetite were better, so that she'd have had more sandwich bags.

Walter Sage told about an article in a Chinese journal reporting on genetic experiments to produce a white-fleshed *Achatina fulica*. This large, abundant land snail is a source of high-protein food in many areas of the world. White flesh would make the ordinarily blackish-grey food more esthetically pleasing and acceptable, though it will still be as tough as a used truck tire.

Ed Cowles showed some slides of a trip he'd taken to British Honduras (now Belize) many years ago.

The meeting ended with Monique's requesting the members present to be participants in a program of the same kind in January. Several members promised to contribute to the program.

Frank Nelson

HIGHLIGHTS OF THE JANUARY MEETING

President Monique Caubere noted that this 322nd meeting marked the 35th anniversary of the New York Shell Club.

Monique read a letter from Dorothy Raeihle that reported three deaths: Dr. Joseph P. E. Morrison of the Department of Invertebrate Zoology, U. S. National Museum, and members Morris Levine and Harvey Meyer.

The program consisted of displays of shells by several members, who discussed their reasons for their choices of shells. Al Scarpetti, with his artist's appreciation of color, had brought thirty *Conus*, all of which might be described as having "brown" as their major color. Al pointed out that descriptions in identification books very often call a shell merely "brown" and that this is inadequate, considering that the shell might be a light tan, chocolate, so dark as to be nearly purple, or any hue within that range. His thirty Cones illustrated the range, and included examples of the possible variation within a species. Comment and questions by those present, gathered around the table, developed a momentum that carried the discussion into the subject of the prey and poisons of cones.

Monique displayed a selection of freak *Cypraea*, showing aberrations in form and color. Milton Werner had brought fossil casts, replacements and shells of marine gastropods collected along the banks of the Potomac River at Marlboro Point, Virginia. The casts were corkscrews of gray marl, hardened to stone, that had packed into the interior spaces of two high-spired species, one of which was probably a Turritella.

Howard Israel displayed a number of his favorite shells, and told how his interest in conchology had developed. His first contact was through shells that had been given to him. Pointing out shells he had later bought, he noted that some had come from McArthur's shop, which later became Veronica Johns' Seashells Unlimited.

For a time it was feared that the 35th anniversary meeting would also be the first one to be missed by Nick Katsaras since meeting number two. He was warmly greeted, therefore, when he did appear, explaining that he had realized suddenly that it was January 8th, and the second Sunday, when he was seated in "a $5.00 movie" — whereupon he arose and came forth.

Milton Werner, Recording Sec'y.

COMING EVENTS:

SHELL SHOWS AND AUCTIONS

March	1 - 4	Sanibel Shell Fair. Sanibel Community House.
	13 - 15	Marco Island Shell Show. Harper Hall.
	16 - 18	St. Petersburg Shell Show. Skyway Inn Best Western Motel, 3600 34th Street South.
	21 - April 1	Hawaiian Malacological Society Shell Show. Ala Moana Shopping Center, Honolulu.
	22 - 25	Georgia Shell Club's Shell Show. Northlake Mall, Atlanta.
April	?	British Shell Show. Nottingham, England.
	8	New York Shell Club's Annual Social and Auction. (See page 2.)
	13 - 15	Greater St. Louis Shell Club's Shell Show. JJCA Auditorium, Creve Coeur, Missouri.
	26 - 29	Rochester Shell and Shore Club's Shell Show. For location, inquire c/o Priscilla Sax, 64 Hunters Run, Pittsford, New York 14534.
May	20	Sol Weiss' Annual Auction. American Legion Post 144, Willis Avenue, Williston Park, New York.
June	?	Chicago Shell Club Auction. For information, inquire c/o Evelyn Lewis, 3913 Saratoga #114, Downers Grove, Illinois 60515.
July	26 - 29	Jacksonville Shell Club's Shell Show. Jacksonville Beach Flag Pavilion.
Sept.	22 - 23	Long Island Shell Club's Shell Show. Freeport Recreation Center, Freeport, New York. (To be verified.)

(Compiled from various sources.)

PLANS for these NOTES include a new roster and a five-year index covering the numbers 251-290.

AMERICAN MALACOLOGICAL UNION, INC.
50th MEETING JULY 22 - 27, 1984

NEWS FROM THE PRESIDENT

We will be meeting at the Holiday Inn Scope Hotel at Norfolk, Virginia, from July 22 (Sunday) to 27 (Friday, 1984. There will be plenty of things to interest the amateur as well as the professional. On the scientific side there will be symposia on the "Physiological Ecology of Freshwater Molluscs" and "Larval Ecology of Molluscs." Correlated with the latter is a workshop on veligers -- which will be collected from the plankton during a boat trip. Have you ever seen a living veliger? If not, do please come along! Another workshop is on the fossil and recent mollusk fauna of Virginia and the Carolinas. A mid-week field trip will be to the Rice Pit in Hampton, Virginia, a famous Pliocene fossil locality. Additionally, there will be contributed papers, a poster session, an auction, and a banquet talk on a popular subject: scallops. Suggestions are still welcome.

Dr. Robert Robertson, President, Department of Malacology,
Academy of Natural Sciences, Nineteenth and the Parkway,
Philadelphia, Pennsylvania 19103. 215-299-1131

AMU Newsletter 14(2) Fall, 1983

COA CONVENTION

The Conchologists of America (COA) cordially invites all national and international shell enthusiasts to its 12th Annual Convention. It will be held at the pink and palatial Don CeSar Beach Resort at St. Petersburg Beach, Florida, on June 27 through June 30, 1984.

This year's meeting will be hosted by the St. Petersburg Shell Club and welcomes all shell collectors, members and non-members, novice and advanced, as well as shell dealers and scientists. Convention activities are primarily centered around fun and interesting events, with shell-related programs, field trips, auctions, dealers' bourses and banquet.

Forms and additional details will be available April 1. Anyone interested in attending should contact Donald J. Young, Convention Chairman, 11975 Third Street East, Treasure Island, Florida 33706.

COA Release

ALABAMA COLLECTION TO BE ABSORBED BY FLORIDA STATE MUSEUM

Harry G. Lee

Kurt Affenberg of the Florida State Museum, Gainesville, reports that the malacology division is about to receive the entire mollusk collection of the University of Alabama. A recent article put the holdings of the latter at greater than 5,000 lots. Much valuable material, especially terrestrial and aquatic species, some extinct, are included as well as a fair amount of type material. Kurt tells us that the Florida State Museum collection will virtually double. This great and welcome addition will place Florida State Museum's mollusk collection in the "top ten" in the U.S.A.

Shell-O-Gram 25(1):1 Jan./Feb. 1984
Published by Jacksonville Shell Club

A SHELL MYSTERY OF ANCIENT AMERICA

Ed Cowles

Thirteen to fifteen centuries ago, the largest city in the world may not have been Constantinople, but a metropolis in the central Valley of Mexico. While it continued in existence until about the year 900, it then suffered — along with many other great cities of the classic Middle American cultures — a sudden decline and cirtual abandonment, as a result of causes not fully known. The Aztecs, who knew only its ruined pyramids, temples, avenues and palaces, held it in awe and called it Teotihuacan — "where the gods lived."

Metropolis is an apt term for Teotihuacan, for visitors — religious pilgrims, merchant-traders, craftsmen — from other areas of Mesoamerica came there and lived and worked in particular sections of the city, as is known from archaeological investigations. In turn, Teotihuacano influences are seen in the arts and architecture of many other places, such as El Tajin, Monte Alban, and even Mayan cities in what is now Guatemala.

What was the basis of Teotihuacan's influence? There is no evidence that it was military force; rather, it appears to have had a religious foundation. Religious symbolism permeates the stylized fresco paintings covering virtually all walls of the rooms and patios of every structure that has been excavated there, as well as the painted decorations on ceramic bowls and urns.

The principal deity was Tlaloc, the rain god, who is typically shown as a stiffly posed figure almost smothered in an elaborate costume, his outspread hands strewing on each side a stream of beneficences upon the land. Very numerous among these are several kinds of seashells: olives, scallops, conchs, and blunt star-shaped figures with a circle in the center that represent the lateral cross-section of a conch. These shells are also frequent motifs in the painted friezes on the walls of rooms and patios of the "palace"-residences, and on the ceramic pieces. The so-called Temple of Quetzalcoatl (actually the stepped pyramidal base for a presumed temple structure) has sculptured panels with the wave-like body of the feathered serpent undulating around groups of seashells.

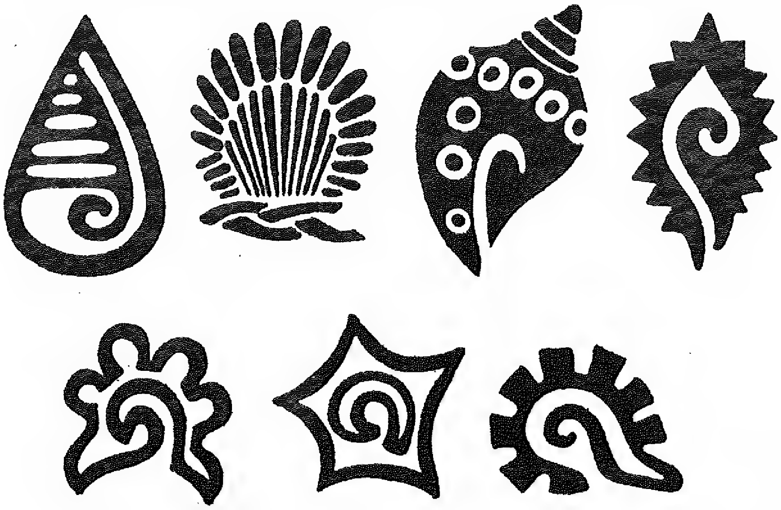
Here is the mystery: How did it come about that this "Mecca" of ancient America, 250 miles from the sea, had seashells as such a vital element of its iconography? To be sure, shells were prized by many preColumbian peoples and were widely traded and used to make jewelry or for decorative trim on various objects. Shells have been found in Indian mounds in Oklahoma, for instance. But only Teotihuacan made them such pervasive cult objects. We can only theorize about the reasons for this. Perhaps the founders of that civilization were originally seacoast dwellers, or were influenced by migrants from the coast, who held shells in religious esteem.

However that may be, certainly at least one Teotihuacano artist in the city's heyday must have visited the seashore. One of the more naturalistic murals depicts shell collectors — young men swimming through waves that partly obscure them as though by refraction of light; they are picking up scallops and olives and putting them into net bags tied around their necks.

MAYAN SEASHELL STAMPS

Virginia Lee

Among the artifacts of the civilization of ancient Mexican Indians are strange little hand modeled, baked clay objects called STAMPS. They were used to decorate pottery by pressing on still-pliant clay pots, to pattern cloth or their own skins — using various dyes found in plants and insects. The colors were well ground and mixed with oil or alum. Some of the colors and their sources were: BLACK, smoke of pine wood, pine charcoal or soil. WHITE, gypsum, soil or chalk. RED, cochineal insects or sap of the tree of blood. BLUE, indigo. TURQUOISE, indigo mixed with white. YELLOW, soil, parasites of certain tropical trees or sap of thorny poppy.



MAYAN SHELL STAMPS
by Virginia Lee

The stamps were also used as articles of trade with other cultures and have been found in widely scattered areas of this hemisphere, including Florida. While they were made in an array of designs, those stamps of special interest to shellers are the ones incorporating the patterns of shells. The ones shown here are based on the cross section of sea shells and could be: (top row) *Conus*, *Pecten*, *Turbinella*, you guess the next one (*Drupa*? --ed.), and (second row) *Strombus*, *Astraea*, and *Murex*.

[Adapted from an article by Virginia Lee; the stamps have been reduced in size.]

Reprinted from The Mollusk *21*(3):6 March 1983,
published by the Greater Miami Shell Club, Inc.

MORRIS LEVINE

It is with sadness that we report the death of our member Morris Levine of Jamaica, New York, who succumbed to cancer October 2, 1983. Morris and his wife, Annita, joined the New York Shell Club in 1972. They also held membership in the St. Petersburg, Hawaiian, and San Diego clubs.

For some years the Levines wintered in San Diego, and became closely associated with the club there. His shell collection, worldwide in scope, was bequeathed to the San Diego Natural History Museum and his shell books to the San Diego Shell Club.

Our deepest sympathy is with Annita.

dr

HARVEY G. MEYER

We are sorry to report the death on November 13, 1983, at age 88, of our member Harvey Meyer, after several years of declining health.

Harvey joined the New York Shell Club in 1961, at about the time of his retirement from his professorship (Head of Accounting) at the University of Tennessee. A few years later he moved permanently to Captiva where he and his wife, the late Maude Nickerson Meyer, were very active in the Sanibel-Captiva Shell Club, and were genial hosts to visiting shellers.

Several years ago Harvey donated his collection of marine shells of Sanibel-Captiva to the Delaware Museum of Natural History.

We offer condolences to his family.

dr

NEIL M. HEPLER

We were distressed to learn of the death of Neil Hepler of Deerfield Beach, Florida in late November, 1983, at age 72. We understand that his death was due to a heart attack.

Neil held a complimentary membership in the New York Shell Club through his prize-winning exhibits, many of which are on permanent display in the Delaware Museum of Natural History. His exhibit "The Chambered Nautilus" is one of these — it is a beautiful and meticulous study showing 37 aspects of the creature. We have also seen his very remarkable display "Janthina — The Violet Snail and its Pelagic Associates" which instructs in history, distribution, propagation, feeding, and predators. His latest, to our knowledge, was a 29' exhibit on the basic life cycle of the Conidae which took awards in Miami last year.

Our sympathy is extended to his wife, Laura.

dr

J. P. E. MORRISON

We are saddened at the news that Dr. Joseph Paul Eldred Morrison, well-known and respected malacologist, succumbed to a heart attack on December 2nd, 1983. He would have celebrated his 77th birthday on December 17th.

Dr. Morrison received his doctorate in 1931 from the University of Wisconsin, and joined the Department of Invertebrate Zoology of the Smithsonian Institution, U. S. National Museum, in 1934. There, in 1946, he became Associate Curator of Mollusks, a post he held until his recent retirement. Although the preponderance of his work was with land, brackish and freshwater species, he was interested in and observant of any mollusk that came to his attention.

He encouraged, he defended, he questioned, he propounded — his was a positive personality. We had a long acquaintance and shall miss him very much.

Our sincere sympathy goes to his wife, Dorothy, and to their son and daughter, Michael and Lillian.

dr

NEW ORGANIZATIONS:

SOCIETÀ ITALIANA DI MALACOLOGIA

A new Italian Malacological Society named SOCIETÀ ITALIANA DI MALACOLOGIA (SIM) is operating from the beginning of 1983.

After about twenty years of activity the previous two old societies existing in Italy, Società Malacologica Italiana and Unione Malacologica Italiana, decided to converge and to join their own interests, activities, researches, congresses and publications in a sole association. By this initiative Italian malacologists hope to act in the future in a dynamic and amplified way in Italy and abroad, through their best contacts, thus assuring a better and modern range of facilities.

The new society will fulfill all the international engagements made by the previous Italian societies of Malacology. Two different reviews are keeping up the Italian publications of Malacology already well-known abroad:

- BOLLETTINO MALACOLOGICO as the SIM official journal
- LAVIRI SIM collecting Acta from congresses and meetings held in Italy
- NOTIZIARIO SIM (newsletter)

We invite all European and extra - European malacologists, scientific Institutes and Museums, to join the new society, writing for subscription to:

SOCIETÀ ITALIANA DI MALACOLOGIA
c/o Acquario Civico
Viale Gadio 2
20121 MILANO, ITALY

Enclosed with the above notification was the announcement of the society's congress to be held at the Università di Palermo Istituto & Museo di Zoologia September 13 - 16, 1984. Languages: Italian, French and English. The provisional program includes a symposium on the topic: "Polymorphism, sibling species and clines. Individual variability in molluscs from the Mediterranean area," "Communications on free topics," "Social dinner and auction," and a day set aside for excursions. For information on procedures for presentations, registration, facilities, etc., write to:

SEGRETERIA CONGRESSO SIM
Via A. Conti (ex P31) n. 19
90146 PALERMO, ITALY

SHELL COLLECTORS ASSOCIATION OF NOVA SCOTIA

We recently established the Shell Collectors Association of Nova Scotia. The club consists of a small group of enthusiastic shell collectors who would welcome correspondence from other clubs. We are also very interested in receiving the Newsletter.

Would you please address all correspondence to Dr. Derek S. Davis, 1747 Summer Street, Halifax, Nova Scotia, B3H 3A6, Canada.

AMU Newsletter 14(2)
Fall, 1983

SOCIEDADE MALACOLÓGICA DO RECIFE
Sede Provisória
Recife - Pernambuco

Recife, 10 de outubro de 1983

Dear Sirs,

Some years ago we started in our city of Recife, Brazil, an institution to sponsor research and cataloguing of MOLLUSKS, which are quite plentiful in our region. This institution is called SOCIEDADE MALACOLÓGICA DO RECIFE and uses the address:

MAURICIO ANDRADE LIMA
RUA IBIAPABA No. 89 Aptº 202
TAMARINEIRA - RECIFE - PE
BRASIL CEP 50000

We have encountered some difficulties in obtaining a good variety of specimens and in finding specific literature in the field. This is the reason for our correspondence at this time.

We are promoting this contact with known institutions of similar interest, collectors, and others who may have interest in shellfish research and collection to offer specimens of shellfish in exchange for specific literature such as magazines, scientific bulletins, and journals - we do have a wide variety of books, so our interest is more directed to the more specific items referred to above. Any publication on Malacology and shellfish is of interest to us.

May we offer our gratitude and anticipate our thankfulness for any interest or reply to our request. Please put our name on your mailing list.

Many regards,

MAURICIO ANDRADE LIMA
Vice Presidente

EXCHANGE REQUEST

We have a letter from a collector in Hungary who collects especially sea shells (Prosobranchia) and finds it difficult because "Hungary have only 3 - 4 peoples whose profession is shell collecting." He writes: "I have a considerable collection (and the) Hungarian Natural History Society wants to make an exhibition from my collection." For this he would be very happy to receive "any colorful or highly toxic cone shell or any Mitra shell."

In exchange he would send "Hungarian shells (Bivalvia, Gastropoda - Prosobranchia, Pulmonata, Stylommatophora, Clausiliidae and Helicidae), Black Sea and the Caspian Sea bivalves. Accurate scientific names with precise locality information."

The letter concludes with "Thanks for your kindness,

Yours very sincerely,

Gabor Tompai
Strobl A. u. 7
H. ep. II. em. 204
H-1087 Budapest
Hungary

MORRIS KARL JACOBSON
SCHOLARSHIP FOR MOLLUSCAN STUDIES

The Astronaut Trail Shell Club of Brevard County, Florida, again offers a grant of $500.00 to a student who is registered for a Masters or Ph.D. degree in an accredited Florida college or university and is engaged in a research project, or preparing a thesis, dealing primarily with the natural history or systematics of mollusks.

Applicants should submit a brief educational resume, an outline of the research project, the use to which the money will be put, and a letter of recommendation from his or her chief advisor. Applications should be mailed to the Chairman of Scholarship Awards, Astronaut Trail Shell Club, P.O. Box EG-515, Melbourne, FL 32935 before April 1, 1984.

This scholarship is given in memory of Morris Karl Jacobson, an honorary Life Member of the Astronaut Trail Shell Club who made many scientific contributions to malacology, and was author of several popular books on shells and sealife.

Astronaut Trail Shell Club

A POSSIBLE CONTROL FOR RED TIDE?

An October 31 report in The New York Times, on the latest occurrence of the "red tide," a toxic-producing plankton that undergoes a growth explosion in the Gulf of Mexico every year or two, tells of a method being developed by scientists to combat the plague. Dr. William Taft, director of the Mote Marine Laboratory in Sarasota, says a ten-year study program has yielded a harmless strain of blue-green algae that — in lab tests — outcompetes the red tide organism for available nutrients. The next step will be to conduct a field, or sea, test in which a ten-square-mile patch of red tide "bloom" is to be laced with the algae.

Red tide can spread over a thousand square miles or more of the Gulf, and persist for many weeks. While the paralyzing neurotoxin is directly poisonous only to fish and other marine creatures, and not to humans (unless they consume clams or oysters in whose flesh it becomes concentrated as the mollusks filter large amounts of seawater), the tourist industry suffers millions of dollars of losses as a result of the vast numbers of dead fish that wash up on the beaches. Also, fine spray from breaking waves carries the irritant, and this can cause respiratory distress to people who inhale it.

Ed Cowles

DID YOU KNOW THAT

Modern oceanography began in 1872 with the 3 1/2 year voyage of the 2,300-ton H.M.S. Challenger. She covered 68,890 miles, exploring the then-mysterious sea bottom by taking soundings, samples and water temperature in the Atlantic, Pacific, Antarctic and southern Indian oceans. Scientists aboard discovered 715 new genera and 4,417 new species of sea life, the findings filling 50 volumes.

Graham Berry in Introduction to Oceanography
in Modern Maturity 25(1): 57-61

GIANT OCTOPUS COMES ASHORE

R. Tucker Abbott

If you're wading along the shore on the east coast of Florida, and are approached by a 100-foot octopus, don't think you're dreaming, and don't attempt to collect it! Get out of the water and inform the local police or the Coast Guard. Then get on the phone to Dr. Clyde Roper of the Smithsonian Institution in Washington. He's an expert on giant cephalopods and will come rushing down and attempt to capture the beast or rescue remains.

The last person to tangle with a 20-ton octopus was Dr. DeWitt Webb who used two horses to drag an 8-tentacled carcass off the beach just a few miles south of St. Augustine. He photographed the remains and sent preserved samples both to the Smithsonian and to Dr. A. E. Verrill, the expert at Yale University in Connecticut. That was back in December 1896. A fiction story? Not at all. How come the story got buried?

Dr. William H. Dall at the Smithsonian made a cursory examination of the fleshy sample and declared it to be blubber from a whale. Verrill at first proclaimed in the American Journal of Science that the huge mass of tissue sent him was in fact the remains of an octopus, and not from a giant squid. In view of the ridicule heaped on Verrill by his colleagues, the Yale expert later expressed his doubts on his original identification. Dr. Webb continued to insist that the creature was an octopus.

Proof that it was, indeed, a huge octopus came in 1971 when Drs. F. G. Wood and J. F. Gennaro made histological and biochemical studies of the preserved flesh. Even the skeptics now agree that it was a cephalopod, although a few diehards believe it could have been a giant squid. This is an incredible fact of nature, and one that someday, yes anyday, may be substantiated by an observant swimmer or shell collector. So keep your eyes open, and happy shelling.

OCTOPUS INK

Sea Secrets is a publication of the International Oceanographic Foundation, Miami. The Question-Answer section of the Nov.-Dec. issue included the following:

Question: What is the composition of octopus ink? Also, how is it produced by the animal?

Answer: The black or brown ink of an octopus is composed of melanin pigments derived biochemically from the amino acid tyrosine and similar compounds. The pigment is continuously secreted by the ink gland into the ink sac, where it is stored.

When an octopus is alarmed, the ink is released through a duct generally located near the anus. The ink can be discharged as a dilute cloud which serves to camouflage the octopus. Ink can also be released with a simultaneously secreted mucus binder, as a pseudomorph or decoy, appearing like a solid, to confuse a predator.

(IOF) 1.61(6) 3715
27:6 (Fourth Series)

FOREWORD:

In contrast to the skepticism about the giant octopus (see page 13), enough giant squid (Architeuthis) have been seen, first to verify their existence and second to offer material for study. This is the Kraken, the awesome creature depicted in the motion picture "20,000 Leagues Under the Sea" as attacking Captain Nemo's submarine "Nautilus." (Here, too, if you see one at or near the shore, first run away from it and, second, notify the proper authorities.) In an article for Scientific American, Drs. Clyde Roper and Kenneth Boss have made an authoritative report on what is known of this cephalopod. It is absorbing reading. Consult your library. --ed.)

THE GIANT SQUID

by Clyde F. E. Roper and Kenneth J. Boss. Scientific American, April 1982, Vol. 246, No. 4, pages 96-100, 104-105. Illustrated with 5 drawings and 3 photographs.

We quote the opening paragraph with the author's permission:

> In "Moby Dick" Herman Melville describes a sea creature of "vast pulpy mass, furlongs in length..., long arms radiating from its center and curling and twisting like a nest of anacondas." He apparently had in mind the giant squid; his description reflects the meager information that was available about the animal in his time. Indeed, until the crew of a French warship sighted one in 1861 and managed to haul in part of it the animal was quasi-mythical. Even now, when a considerable number of specimens have been reported, the giant squid (weighing up to 1,000 pounds and having an overall length of some 18 meters, or nearly 60 feet, if the tentacles are extended) remains largely mysterious. No living specimen has ever been maintained in a research institution or an aquarium. Most of what is known comes from strandings, when the squid is dead or dying; from capture by fishermen of animals that soon died, and from specimens removed from the stomach of toothed (fish- or squid-eating) whales. On the basis of this information one can state what a mature giant squid looks like and can say quite a bit about its internal anatomy. On other matters, such as its habitat and method of reproduction, one can offer only educated guesses based on what is known of related oceanic squids.

One of the photographs is of a giant squid stranded on the beach at Plum Island, Massachusetts in 1980. It was a "medium-sized" one - about 10 meters - dead and a bit battered. It is now under study at the Smithsonian Institution. Another photograph is of the radula, which is described as being 10 cm long — very tiny compared to the size of the animal.

Drawings include some that are anatomical and a map showing distribution of encounters.

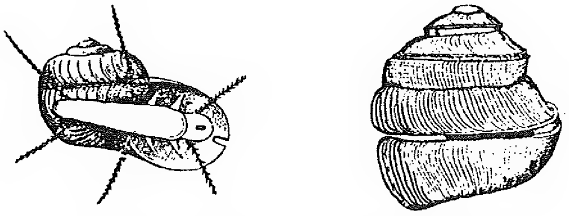
HOTLINE FOR STRANDINGS

Long Islanders wishing to report marine wildlife strandings (local) of whales, porpoises, turtles, giant squid, etc. should call Department of Environmental Conservation's hotline at 516: 653-4511. The hotline is monitored by Samuel Sadove, director of Okeanos, a nonprofit research and education center.

THE ANCIENT MARINER

June Dawley

Members of the family Pleurotomariidae, genus *Perotrochus*, are well known to collectors as slit shells. American species are large — two to seven inches — and colorful. The slit in the body whorl is open. These are rare and beautiful shells.



Scissurella crispata
3.5 mm

Illustration from
American Seashells,
Abbott, 1974, p.16, No.10

Less well known are the smaller slit shells, members of the family Scissurellidae, the largest of which is one-third of an inch, and the smallest less than one millimeter. These tiny slit shells are worldwide. If you belong to the "small is beautiful" school of collecting, these little wonders will delight you. Here is *Scissurella crispata* (Fleming, 1828) which is found from the Arctic Seas to Florida, Europe and Japan. It is pearly white and measures 3.5 mm.

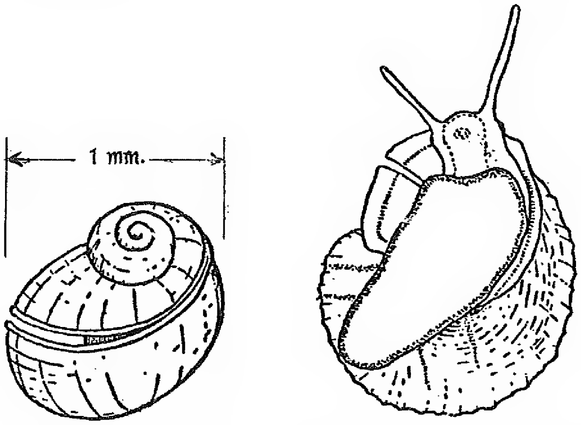
In less than one ounce of fine sand collected in Bermuda and sent to me by a friend, I found many tiny snails, - some *Amphithalamus vallei* (1 mm), among others, and a surprising number of slit shells, *Scissurella* (*Schismope*) *cingulata* (O. G. Costa, 1861). This species, when fully adult, usually closes the long slit at the aperture, leaving some of it open but with no break in the outer lip. In shell classification, the nature of this slit, open or closed, is a primary factor in determining genus:

Schismope The slit is a hole, not reaching outer lip.

Schizotrochus Slit is open to outer lip, and is on lower part of body whorl.

Scissurella Slit reaches outer edge of aperture *and* is in upper or middle part of body whorl *and* shell is depressed.

Scissurona The slit reaches all the way to outer edge of lip and the shell is elevated.



Scissurella (*Schismope*) *cingulata*
Bermuda.

Illustration from
Caribbean Seashells,
Warmke & Abbott, 1961,
p. 35, fig. 10.

These tiny shells look like grains of sand to the naked eye, but are beautiful when viewed through a microscope. They are among the most ancient of mollusks, going back in time some 600 million years. (I have noticed that most shell books discuss the kinds of shells according to age, reading from the most ancient and primitive to the newer and more highly developed.) The most advanced is the octopus.

The slit which occurs in Scissurellidae is functional: body wastes are excreted through the slit which would otherwise contaminate the two gill plumes with which the animal breathes. Every slit-shelled animal has a finely-toothed radular tongue designed for eating delicate seaweeds and other kinds of algae. The sexes are separate and it is assumed, but not yet established, that they reproduce by releasing eggs and sperm into the water.

R. T. Abbott, American Seashells, 2nd Ed., 1974, lists three species of tiny slit shells in Florida waters and three in the West Indies. All but Scissurella (Schismope) cingulata are described as uncommon or rare. Wouldn't you know.

Reprinted from The Shell-O-Gram 25(1):6-7,
Jan./Feb. 1984, published by the
Jacksonville Shell Club, Inc.

PUBLICATIONS ANNOUNCEMENTS:

COMPENDIUM ERRATA

There is yet to be a book published that didn't have some inadvertent errors, and authors Abbott and Dance have kindly prepared an errata sheet for the first printing of their useful and popular Compendium of Seashells. A free copy of this errata may be obtained from Dr. R. T. Abbott, Box 2255, Melbourne, Florida 32902, by sending a self-addressed, stamped envelope.

Also available from American Malacologists, Inc., same address, for $39.00, is a copy of the second 1983 printing which incorporates these 50 changes in the text.

R. T. Abbott

DISTRIBUTION OF SHALLOW-WATER MARINE MOLLUSCA, YUCATAN PENINSULA, MEXICO

by Harold E. Vokes and Emily H. Vokes. With 50 black-and-white plates, illustrating nearly 800 species of mollusks, from Isla Carmen on the Gulf of Mexico to Belize on the Caribbean coast of the Yucatan Peninsula. Cost: $20.00 + $1.50 postage and handling = $21.50.

Order from: Middle American Research Institute, Tulane University, New Orleans, Louisiana 70118.

ILLUSTRATION OF THE TYPES NAMED BY S. STILLMAN BERRY IN HIS "LEAFLETS IN MALACOLOGY"

by Carole M. Hertz. 42 pp., 90 black & white photos. Published as a supplement to Volume XV of the Festivus.

This supplement illustrates all the molluscan species (except Octopus) named by Dr. Berry in the "Leaflets" and includes pertinent information about each illustrated species.

Copies are available, while the supply lasts, at $5.00 each plus postage. [First class (domestic) $.88; Printed matter surface (overseas) $.88] To order copies, send your check to the San Diego Shell Club, inc., in care of 3883 Mt. Blackburn Avenue, San Diego, California 92111.

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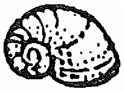

January

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15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

February

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⑫	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29			

March

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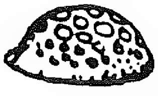

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The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 419, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETINGS: SUNDAY, JUNE 10, 1984, at 2:00 p.m.

ANNUAL ELECTIONS
"MARGINELLAS" by Nick Katsaras

SUNDAY, SEPTEMBER 9, 1984, at 2:00 p.m.

Program to be announced

SUNDAY, OCTOBER 14, 1984, at 2:00 p.m.

SHELLING IN THE SOUTH PACIFIC, by guest speaker Russell H. Jensen, well known malacologist.

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May 2, 1984

Dear New York and Long Island Shell Club Members:

Thanks to your enthusiastic response, the New York Shell Club Annual Social was a complete success. After expenses for food, beverages and rentals, the Club cleared over $1,225 for its treasury. Highlights of the afternoon auction were a beautiful Lambis violacea, a Voluta loroisi, a Conus barthelemyi and other uncommon Cones. The bargain table run by Frank and Lee Nelson was also an excellent source of shells, and there were many outstanding buys for discerning eyes and casual browsers alike.

The New York Shell Club really appreciates all those who helped make the party so enjoyable through their donations of time and materials, and delicious dips and home-baked goodies. I would like to extend a special thanks to Sol Weiss for being our auctioneer and to his assistant, David Luchow, also to Walter Sage, Waverly Harmon, Barbara Sorensen, Richard M. Kurz, Marty Gill, Bob and Dotty Janowsky and all the other members, friends and dealers for their assistance and generous contributions of shells. Another special thanks to Al Scarpetti for his colorful illustration and to Dorothy Jensen for her help in arranging the party and for the continuing use of her studio.

It was heartening to see how many old and new friends support the Club.

I hope you have a pleasant summer, and look forward to seeing you next fall.

Sincerely,

Monique

Monique Caubere, President
New York Shell Club, Inc.

HIGHLIGHTS OF THE MARCH MEETING

The minutes of the February meeting were not at hand, but those of the January meeting were read and accepted. Six visitors, from as close as 77th Street and as far away as Nassau County, were introduced.

President Monique Caubere reported receipt of a letter from Jane Hultbert of the Brooklyn Children's Museum, stating that the Museum has shell collections that have never been curated, the oldest dating back to 1909. She said it would be appreciated if the Club would provide some volunteer help to bring a semblance of order to this stored material, in the hope of being able to display and make use of it. Monique suggested that those who attend the June meeting proceed to the Brooklyn Museum after assembling at the American Museum of Natural History, and work on these shells in lieu of a regular program. It was suggested that, because June is our election meeting, we go to the Brooklyn Museum in May, after a brief business meeting. It was so agreed.

Walter Sage reported the sad news that Dr. William J. Clench had died on February 22nd.

Theta Lourbacos said that she, Edna Christensen and Sandy Holzman have shells on display at the Bloomingdale branch of the Public Library, 150 West 100th Street, and that it may be possible to "tour" it to other branches.

Mathilde Weingartner announced that a former member, Mary Louise Brown, had died, and had donated her collection to the Staten Is-Institute of Arts and Sciences, where it will be on display until mid-summer.

The speaker was Bruce Einsohn, who recalled, with the aid of excellent slides, his trip of last June to the northeast coast of Java to observe a full eclipse of the sun. His photographs covered not only the event itself, but his group's stops in Tokyo, Jakarta, Surabaya, Bali, Singapore, Bangkok, Hong Kong, China (for one day) and Macao. He displayed some marine and land shells representative of the southeast Pacific, although he had not had time for any serious collecting.

Milton Werner, Recording Sec'y

HIGHLIGHTS OF THE APRIL MEETING

The 325th meeting of the New York Shell Club, April 8, 1984, was an annual social meeting and auction. It was held at the Broadway Dance Studio, Astoria, Queens. Attendance was 44 members and visitors.

President Monique Caubere opened the meeting at 2:06 p.m., although many had arrived much earlier to examine the shells and related material to be auctioned. After extending greetings, Monique led a brief business meeting in order to make final plans for the May meeting, which was to be unusual in that the program would be a service project that would take place at the Brooklyn Children's Museum. It was decided that those attending would meet at the American Museum of Natural History at 1:00 p.m. They would travel to the Children's Museum by car, and there help to sort and identify shell collections that the Museum has held untouched for many years. Members were asked to bring along identification books. Also, officers and directors were asked to meet at 11:00 a.m. that day at the home of Treasurer Theta Lourbacos to consider bank rates and other financial matters.

Sol Weiss served as auctioneer. The donated material included a number of noteworthy items. Among them were: Nine Riker mounts that sold for $18; a copy of Peter Dance's "Collector's Encyclopedia," $11; two Cypraea marieai and a Cypraea childreni, $15; Strombus listeri, $15; Conus aulicus, 4 1/2", $33; Conus barthelemyi, $50; a growth series of three Terebra maculata, $17; Conus bullatus, $18; a shell drawing by Al Scarpetti, $55; Voluta loroisi, $25; Lambis violacea, $45; Conus grossi, $30; six Acavus haemastoma, 1 7/8", $30; a growth series of eight Lambis lambis, $25. The door prize was a copy of Emerson and Feininger's "Shells."

Lee and Frank Nelson presided over a heavily laden sale table. Wine, punch, cheese, cold cuts, dips and cakes were available throughout the auction.

It was announced that Dorothy and John Germer, of Maywood, New Jersey, will be moving to Ohio, and will sell some of their shells and cabinets.

Milton Werner, Recording Sec'y

WILLIAM J. CLENCH

It is with sadness that we report the death on February 22nd of Dr. William J. Clench, at age 86. He had been in declining health for some time. We knew him as a warm, friendly, enthusiastic person who gave freely of his time and knowledge. We last saw him when he was a guest at our April 1981 social.

William James Clench was born in Brooklyn October 24th, 1897. He earned his BS degree at Michigan State College in 1921, his MS at Harvard University in 1923 and received his PhD from the University of Michigan in 1953. In 1925 - 1926 he held positions in museums in Michigan, then came to the Museum of Comparative Zoology, Harvard University, where for forty years (1926 - 1966) he held the position of Curator of Mollusks.

During his years of association with MCZ he developed, and was co-founder and editor of, the Harvard publications "Johnsonia" and "Occasional Papers on Mollusks," and was a co-editor of "Indo-Pacific Mollusca." His editorial talents were called upon by publishers of encyclopedia, "Nautilus," and others, and he was technical editor of the third edition of Percy Morris' "Field Guide to Shells of the Atlantic and Gulf Coasts," 1973. He helped to found the American Malacological Society and was a member of numerous societies and shell clubs. "American Malacologists" (1973-1974) notes his publications as "over 420 professional papers on mollusks" with probably the majority on land and freshwater species.

The Boston Malacological Club's "Newsletter" of April 1984 carries an obituary with biographical notes, written by Ed Nieburger, from which we quote:

> During his lifetime, Dr. Clench developed as great a number

> of friendships with amateur shell collectors as he did with professional malacologists. ... In an address to the American Malacological Union in 1957, Dr. Clench stressed "The Importance of the Amateur." He encouraged beginners in the field to venture further in their quest for molluscan knowledge. Bill always made time for the amateur collector, an attribute he admired in Charles W. Johnson, Principal Curator, Boston Society of Natural History 1903 - 1932, and a man after whom Bill named his now famous journal, "Johnsonia."

The "Clench Scholarship Fund" has been established by the Boston Malacological Club to honor the memory of Dr. Clench. Contributions to the fund may be sent to the Boston Malacological Club in care of Edward Nieburger, Box 3095, Andover, Massachusetts 01810.

Our sympathy is extended to his son, Carleton W. Clench, and his family.

Dorothy Raeihle

S. STILLMAN BERRY

Dr. Samuel Stillman Berry, well known in professional circles, died April 9, 1984 at his home in Redlands, California at the advanced age of 97 years.

Although he specialized in Cephalopods and Chitons, especially from the eastern Pacific, the recent "Illustrations of the Types Named by S. Stillman Berry in his 'Leaflets in Malacology'" by Carole Hertz concerns mostly gastropods ot the area.

Dr. Berry was born in Unity, Maine March 16, 1887, but spent his adult life in California (See "American Malacologists" 1973-1974, p. 206, for further details.).

A short obituary from United Press is datelined Stanford, California and describes Dr. Berry as a "renowned flower breeder and sea-shell collector" and adds that "Berry's shell collection is rated as one of the finest in the world by the Smithsonian Institution."

Dorothy Raeihle

AMERICAN MALACOLOGICAL UNION, 50th ANNUAL MEETING JULY 22 - 27, NORFOLK, VIRGINIA

Dr. Robert Robertson is planning a superb meeting. We give you excerpts from his "President's Message:"

> Whether you are a serious amateur or professional, I cordially invite you to the Norfolk meeting. This is being held in the downtown - waterfront area. Norfolk is centrally located on the U.S. east coast, in an area with much scenic beauty and historical interest. The meeting is being jointly sponsored by the National Capital and Philadelphia Shell Clubs, there being no Norfolk shell club. Mrs. George M. (Wylda) Stephens, of Virginia Beach, is our Local Chairman.
>
> Plans as of this writing include the MALACOLOGICAL MEDLEY, which should interest all members. I also draw your attention to the two INTERNATIONAL SYMPOSIA, one on the PHYSIOLOGICAL ECOLOGY OF FRESHWATER MOLLUSCS, and the other on the LARVAL

ECOLOGY OF MOLLUSKS. Correlated with the latter is a FIELD TRIP and WORKSHOP on COLLECTING AND STUDYING VELIGERS. There is also a WORKSHOP on the FOSSIL AND RECENT MOLLUSK FAUNA OF VIRGINIA AND THE CAROLINAS.

Norfolk is in a good area for field trips. These will be on Wednesday afternoon (except the veliger trip). There will be FOSSIL, MARINE DREDGING and FRESHWATER trips.

There will also be CONTRIBUTED TALKS, non-commercial and commercial EXHIBITS, meetings of the CONSERVATION COMMITTEE and the COUNCIL OF SYSTEMATIC MALACOLOGISTS, an IDENTIFICATION CLINIC, SLIDE SHOWS, a gathering of DOMINICAN REPUBLIC PROJECT TAXONOMISTS, an AUCTION, a RECEPTION, a SOCIAL HOUR, and a BANQUET. Posters and exhibits will be on display for most of the meeting. Remember to bring specimens to the Identification Clinic.

I hope to see you in Norfolk!

Headquarters will be the HOLIDAY INN at 700 Monticello Avenue, Norfolk, Virginia 23510 (telephone: (804) 627-5555). The hotel requires that reservations be made at least 30 days before the meeting and a deposit in advance for one night's lodging. A single room costs $50 + 7% tax, $8 + 7% tax for each additional person in the room, up to four people can stay in one room.

If you DRIVE to Norfolk, follow the signs to SCOPE, a stadium next to the high-rise Holiday Inn. If you FLY to Norfolk, take note of the 30% discount offered by Piedmont Airlines (Call the Convention Desk at Piedmont Airlines).

If you wish to participate in the program, the deadline is May 31 for the information and abstracts to be received by Dr. Robert Robertson, Dept. of Malacology, Academy of Natural Sciences of Philadelphia, 19th and The Parkway, Philadelphia, PA 19103.

May 31 is also the deadline for the $40 registration fee; beginning June 1 the fee will be $50 (group photo included). Also, the half-day field trips' prices — $30 for the veliger or marine, $15 for the fossil or freshwater — will increase by $5 on June 1. The banquet fee will remain $30. Send check or money order payable to "American Malacological Union" to Mrs. Wylda Stephens, AMU Local Chairman, 568 Longfellow Avenue, Virginia Beach, VA 23462. Her phone number is (804) 499-1073.

From: AMU NEWSLETTER
15(1):1-3 Spring '84

LONG ISLAND SHELL SHOW SEPTEMBER 22 - 23

The Long Island Shell Club invites participation in their upcoming SHELL SHOW '84, to be held in the Freeport Recreation Center, Freeport, New York on Saturday and Sunday, September 22 - 23. The show is open to everyone — members, non-members, dealers. Those wishing to exhibit must have their applications in before August 1, with a separate form for each entry.

Obtain forms from: P. J. Ehalt, Chairman, LISC Shell Show Committee, 89 North Babylon Turnpike, Merrick, New York, 11566. (516)546-2260.

american malacologists, inc.
P.O. BOX 2255
MELBOURNE, FLORIDA 32902-2255, U.S.A.

I

May 10, 1984

R. Tucker Abbott
President

Cecelia W. Abbott
Secretary

1-(305) 725-2260

UPS address:
2208 South Colonial Drive
Melbourne, Florida 32901

Dear friend of mollusks:

Right now our science and hobby of conchology needs your support. If you have not done so already, I urge you to join one of our national shell societies. Each organization is dedicated to increasing the public's awareness of sensible conservation measures, and each goes a long way in helping fellow conchologists learn more about mollusks.

Take your choice, but please do join one right away:

1. The Conchologists of America with a membership approaching a thousand is mainly for amateurs (or professionals who also love mollusks). A well-illustrated, exciting bulletin is issued quarterly, and soon may grow into a color-filled, popular magazine. Annual meetings are fun-filled gatherings of shellers, interesting slide lectures, field trips and a famous bourse at which dozens of dealers display their latest offerings. The dues are a very modest $7.50 (family:$10.00). You will be joining the biggest shell club membership list in America. Send your check, address and shell interests to: C.O.A., % Phyllis Pipher, 1116 North Street, Tekamah, Nebraska 86061.

2. The American Malacological Union, the oldest and most professional society, is mainly for scientists, biology students and serious amateurs. Its annual bulletin carries the latest scientific advancements in malacology; and the annual meetings feature scientific papers, symposia, workshops and field trips. An annual prize of $250 is given for the best student paper. New members please send their check for $21.50 to A.M.U., % Constance Boone, 3706 Rice Boulevard, Houston, Texas 77005. An information-packed booklet, How to Study and Collect Shells, is available for an additional $3.00 (postage paid).

I've been doing my part for malacology by writing books and producing a few monographs. Won't you give our great science and hobby a boost by joining one of these societies? I'm looking forward to seeing you join me in one, or both, membership lists!

Cordially yours,

R. Tucker Abbott

R. Tucker Abbott

C.O.A. CONVENTION, JUNE 27 - 30

The Conchologists of America will hold their annual convention at the Don CeSar Beach Resort, 3400 Gulf Boulevard, St. Petersburg Beach, Florida 33706. Accommodations (summer rates) by reservation (800) 237-8987 should be made by May 28. After this date, reservations will be accepted as space is available. One night's deposit of $53 plus 7% tax per room for one through four persons must accompany reservation.

Fees for the convention: Registration $15, $20 after June 7; Banquet $16; Field trips: (1) Shallow water shelling, with supper, $5; (2) Scenic boat cruise, with lunch, $7. Checks payable to COA Convention should be mailed as soon as possible to Robert W. Haller, 3210 MacGregor Drive, Palm Harbor, Florida 33563.

W.S.M. MEETING AUGUST 16 - 19

The 17th Annual Meeting of the Western Society of Malacologists will be held at the University of California at Santa Cruz, August 16 - 19, 1984. Emphasis of this year's meeting will be on the Natural History of Marine Mollusks of the Eastern Pacific Ocean. In addition to the regular program of contributed papers, several symposia are planned plus slide shows, exhibits, shell and book auction, and field trips.

For further information, contact Dr. F. G. Hochberg, Secretary, Department of Invertebrate Zoology, Santa Barbara Museum of Natural History, 2559 Puesta del Sol Road, Santa Barbara, California 93105.

FESTIVUS XVI(3) March 1984

GATEWAY

The GATEWAY ENVIRONMENTAL STUDY CENTER is a joint venture of the New York City Board of Education and Gateway National Recreation Area. Their brochure lists teacher workshops, and programs including day visits, ranger-guided and self-guided walks, camping, and special events. Included in the Gateway Area are Dead Horse Bay/Plumb Beach — beach, tidal flats, mudflats, salt marsh; the well known Jamaica Bay Wildlife Refuge; Breezy Point and Fort Tilden for the study of barrier beach ecology; the dunes at Great Kills, Staten Island.

For information you may write to or telephone (212) 252-7307 the GATEWAY ENVIRONMENTAL STUDY CENTER, Gateway National Recreation Area, Floyd Bennett Field, Brooklyn, New York 11234.

Gateway brochure

ANOTHER "COA"

In January the Clean Ocean Task Force (formerly the Ocean Dumping Task Force) became Clean Ocean Action (COA), a change of name and a slightly different role. COA has enlarged the issue to include pollution of New York Harbor waters as well as dumping in ocean waters off the coast of New Jersey.

COASTAL REPORTER, March 1984
American Littoral Society

REVIEWS:

MOLLUSCA, IN SYNOPSIS AND CLASSIFICATION OF LIVING ORGANISMS

by Kenneth J. Boss. McGraw-Hill Book Company, New York, 1982. 260 pp., price $10.00 from Department of Mollusks, Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts 02138.

Dr. Kenneth J. Boss, one of America's most prominent malacologists, has provided students of mollusks with a comprehensive guide to the eight classes of the Phylum Mollusca. The book is composed of a 5-page Synopsis, which lists the families and superfamilies of mollusks; 222 pages giving an explanation of the diagnostic features of each family, mentioning characteristic genera, and listing pertinent references for each family; a 28-page index covering the taxa from the levels of phylum to genus; 2 pages of corrections and additional notes; 16 pages of black and white line drawings picturing the distinctive characters of the major divisions of each class; and a page authorizing xerox reproduction of the original publication.

The text is clearly written, and will enable students of mollusks to better understand the higher classification of this important group of animals. It is apparent that a vast amount of effort went into this compilation, and Dr. Boss is to be commended for giving us this opportunity to broaden our understanding of the animals of the shells we love to collect. The price is very reasonable for a book of this quality, and all advanced students of mollusks are urged to add this book to their libraries.

Walter E. Sage

HONG KONG NUDIBRANCHS

by John Orr. Published by the Urban Council, Hong Kong, 1981. 82 pp., 56 color photographs, line drawings. Size 6" x 8 1/2", price $5.25.

John Orr, long-time student of Hong Kong mollusks, has provided a fine introductory guide to the nudibranchs of this region. This booklet has a great deal of valuable information which is straightforwardly presented and very well complements the full color photos of 55 species of these vividly colored mollusks. The animals are photographed in their natural habitats, and the photos are for the most part clear and will allow the nudibranch enthusiast to recognize the pictured species.

The introduction, of 16 pages, covers classification, in which the four suborders of Nudibranchia (Dendronotacea, Doridacea, Aeolidiacea, and Arminacea) are detailed; anatomy, where the mantle, tentacles and radula are discussed; food and feeding; survival strategies; and where to find nudibranchs. Carefully prepared drawings depict the salient features of each of the above mentioned suborders. Additional drawings figure egg ribbons, rhinophores, mantle, gills, and genitalia.

Of the 55 species discussed, two are identified only to suborder, 12 only to the generic level, and four are tentatively referred to a species. Scientific name, author and date are given for each species, as are several sentences of description, actual size, and radular formula where known. The book is completed with a glossary of terms, a bibliography, a classification table giving families and representative genera, an index, and a map giving collecting areas.

Anyone interested in nudibranchs is advised to purchase this volume; the price is certainly reasonable for the amount of information provided.

Walter E. Sage

KAWAMURA COLLECTION, WORLD SEASHELLS OF RARITY AND BEAUTY

Text by Takashi Okutani. National Science Museum, Tokyo. 1983. 12 pp. + 48 full color plates. 8 1/4" x 12 1/2", soft cover. $13.00.

One of the premier collections of shells in Japan is that so carefully selected over many years by Ryosuke Kawamura. After Kawamura's death his collection was donated to the National Science Museum, Tokyo, which held a special exhibition of this collection. This book is a collection of the highlights of Kawamura's collection, and is a visual delight. The brief text includes a few pages of introduction, a table of contents organized by family, and a listing of the species giving scientific name, author, and locality.

The 407 species here illustrated include many of extreme rarity, some never before illustrated. Each specimen is usually of life size, with the reduction given when not life size, and is an outstanding representative of its species. Gastropods claim the largest coverage and include members of families not considered to be "glamour" groups, such as Haliotidae, Trochidae, Naticidae, Buccinidae, Turridae, and Bullidae, to mention just a few. The 49 bivalves pictured are a good sampling of this class of mollusks. "Popular" families treated include 10 Pleurotomariidae, 22 Strombidae, 24 Cypraeidae, 34 Muricidae, 29 Volutidae, and 28 Conidae.

The photographs have been taken very carefully, with the only backgrounds those of black, dark green, and dark blue, obviously selected to complement the shells. The quality of the photographs is unexcelled, bringing out the vivid colors of the chosen specimens and showing clearly details of sculpture. Collectors can treasure these photographs, as their quality, and that of the specimens, will rarely be surpassed. The cost of the volume, surprisingly low for such color and value, will enable many collectors to "possess" specimens they would otherwise be unable to afford.

Walter E. Sage

THE SYSTEMATIC CLASSIFICATION OF THE CHITONS

(Mollusca: Polyplacophora) by Richard A. Van Belle. 1983. The Belgian Malacological Society publication Informations 11(1-3): 1-178. 13 plates. Price 600 francs (about $10.00) from Roland Houart, St. Jobsstraat, 8, B-3330 Landen (Ezemaal), Belgium.

Chiton collectors are doubtless aware of the earlier works of this author: Catalogue of Living Chitons by Kaas and Van Belle (1980), and Catalogue of Fossil Chitons by Van Belle (1981). This latest work is a revision of the author's seven part systematic classification which appeared in Informations from 1975 to 1978 and covers all fossil and recent supraspecific taxa. Full references are given to each of these taxa, including author and date of publication. The classification, to be usable by both paleontologists and those working on living chitons, is based on shell characters: the articulamentum, insertion plates, and slit pattern. Characteristics less important to this classification are termed "striking external characters," "secondary external characters" and "specific characters."

In addition to a short explanation of this classification, the author provides a 19-page historical review of the literature of chiton classification from Linnaeus to his own work in 1978; a four-page synopsis of the classification, listing two orders, five suborders, 13 families, 15 subfamilies, 77 genera, and 43 subgenera. The bulk of this paper is the systematic section, which discusses in detail each level listed in the synopsis. This 118-page treatment includes a listing of the type species of each genus and subgenus, the synonymy, original diagnosis, and geographical distribution for all taxa, and Van Belle's interpretation of each taxon and his comments where warranted. The index to taxa treated and 13 black and white plates illustrating a typical member of each genus and subgenus, and a short list of uncertain, rejected, and hypothetical taxa complete this paper.

This detailed compilation should prove invaluable to students of Polyplacophora and, with the two earlier papers mentioned above, should permit, as the author states, "any chiton student to find his way" through the names and papers for these mollusks, and hopefully identify and organize his collection.

Walter E. Sage

SHELLS ALIVE!

by Neville Coleman. Rigby Publishers Limited, Australia. 1981. 96 pp.; 92 color, 54 black and white illustrations. Hard cover, price $13.00.

This engaging volume pictures a large number of living mollusks, many in natural habitat, and gives us many details of the living habits of these most versatile marine animals. The photographs excellently complement the easily understood text. Subjects discussed are: shell composition; form, growth, and color of shells; names and classes of mollusks. A chapter each is devoted to chitons, gastropods, scaphopods, bivalves, and cephalopods. A glossary and an index complete the book.

Photographing Australian mollusks and other marine life has been the focus of the author's researches and of his several published books. We very seldom are treated to an author's personal research experiences, and vignettes such as that about Cassis cornuta are most informative, as well as touching. Each of the author's earlier books on mollusks has added new glimpses of the molluscan world, and this volume continues this tradition. The topics highlighted by the author serve to broaden our interest in the living mollusks whose shells we love to collect. This book is assuredly one all collectors and students of mollusks will enjoy and learn from. The photos are exquisite and many species are illustrated here for the first time. The price is nominal and will allow all to benefit from the author's researches.

Walter E. Sage

ILLUSTRATION OF THE TYPES NAMED BY S. STILLMAN BERRY IN HIS "LEAFLETS IN MALACOLOGY"

by Carole M. Hertz. Supplement to Vol. 15 of Festivus, 1984, San Diego Shell Club, c/o 3883 Mt. Blackburn Avenue, San Diego, California 92111. 42 pp., 92 black and white photographs. $5.00.

From 1946 to 1969, S. Stillman Berry published privately 26 numbers of "Leaflets in Malacology." In this series Berry named 99 species, renamed one species, and named 19 new genera and one new subgenus of marine mollusks. Of these taxa, only two were figured by him, and few have subsequently been illustrated.

In the presently reviewed paper, Carole Hertz, editor of The Festivus, figures each of the Berry species, excepting the eight taxa of Octopus, whose types are now at the United States National Museum — data on these species appears in Table I. Berry's holotypes are now housed at Stanford University, San Diego Natural History Museum, Los Angeles County Museum, United States National Museum, and in Berry's private collection. Types for the last 14 species named by Berry are presumed to exist in Berry's collection. The 19 genera and one subgenus described by Berry, and their type species, are listed. These type species are figured only if they were named by Berry in the "Leaflets."

Figures of Berry's types, which are mostly species of the eastern Pacific, are presented in the same chronological order as the "Leaflets." The original name of each species is listed, and the type status of each figured specimen is noted. The date, volume, and page number of each original description follows the figure. Dimensions of the holotype, type locality, and synonymy, where applicable, are included.

A few minor discrepancies are here noted: the omission of the subgenus Herpeteros (land snail); Berry's 1954 "West American molluscan miscellany - I" should be cited as 1(12):67-70 (July 1); the citation "1963. Additional comment on Cionella and Vallonia in California 1(21):134 (Feb. 5)" should be added to Berry's bibliography. This valuable compilation would be even more useful had Dwight Taylor's new species of nonmarine mollusks and a complete listing of all papers in the "Leaflets" been included. However, these points do not detract from the value of this work and the author is to be commended on her important contribution to malacology.

Walter E. Sage

DISTRIBUTION OF SHALLOW-WATER MARINE MOLLUSCA, YUCATAN PENINSULA, MEXICO

by Harold E. Vokes and Emily H. Vokes. Mesoamerican Ecology Institute, Monograph 1, 1983. 183 pp., 50 b/w plates, 9 figures, 3 tables. Price: $20.00 plus $1.50 postage and handling = $21.50. Available from Middle American Research Institute, Tulane University, New Orleans, Louisiana 70118.

This book is the first annotated and illustrated check list of the shallow-water molluscan fauna of the Yucatan Peninsula area, and will be an invaluable resource to anyone interested in western Atlantic Mollusca. A two-page introduction sets forth the scope of the study; a map shows the seven ecologic zones of the Yucatan Peninsula here recognized; Table 1 lists these ecologic zones, Table 2 plots the species of the five classes of shelled mollusks treated, giving number of species for each class and each ecologic zone, for a total of 769 species; and Table 3 gives species that appear most characteristic of the Yucatan area as a whole.

The systematic list of species covers 34 pages, with order of treatment following Abbott's 1974 American Seashells (the reader is referred to this volume for additional information), giving scientific name with author and date, the original reference, page and figure as in Abbott (1974), and plate number for the present book. One page covers literature cited; Appendix 1 of seventeen pages lists the distribution of species by ecologic zone; Appendix 2 details the 99 collecting localities that make up the seven ecologic zones; and a twelve-page index is arranged by specific name, genus, and family and gives both page number of the systematic list and the plate number for each species.

The excellent black and white plates cover 100 pages, with each species illustrated by actual Yucatan specimens except where unworn specimens from museum collections are figured. An important feature is the use of specimens whitened by magnesium oxide where sculpture is more useful for identification than color.

It would have been helpful to have given the page number for each species in the systematic list on plate captions, especially as "Micromollusca" (less than 5 mm average size) are grouped on plates 23 to 31 and 48. The various remarks in the systematic list increase the usefulness of this book, particularly in cases where species determination or placement might be controversial.

This book is a very fine piece of research, and everyone interested in western Atlantic mollusks is urged to purchase and make use of this volume. The text is concise and the plates are of uniformly outstanding quality and should allow for easy identification of species. The price is quite reasonable for a work that will be consulted as much as this book is sure to be.

Walter E. Sage

LICENSE TO COLLECT

In California you must have a sportfishing license ($8.50) to collect (or fish for) anything anywhere in California. There is a general prohibition on the taking of marine invertebrates within a zone extending from high tide mark (mean higher high tide) to 1000 feet seaward of the low tide mark (mean lower low). Beyond the 1000 foot limit any invertebrates (except speckled scallops) can be collected, but bag limits and size limits must be observed.

There are special rules for State Parks, National Parks, and marine reserves.

Any collecting under a scientific permit ($5 - $10 per year) must be for the sponsoring institution (museum, university, etc.) and must be reviewed for potential environmental impact by the local office of California Fish and Game, John Duffy, 1350 Front Street, San Diego (619) 237-7311, and approved in advance by the Marine Patrol Inspector in Long Beach, Russ Goodrich (213) 590-5115.

In Mexico shell collecting *per se* is prohibited except under a scientific permit, which can be obtained from the Mexican Department of Fisheries (Departamento de Pesca), Walter Ocampo, 1010 Second Avenue, Suite 1605, San Diego (619) 233-6956. With a Mexican fishing license ($14 per visit), certain species may be taken for immediate human consumption.

Fossils may not be collected in Mexico.

The laws of both California and Mexico prohibit the sale or trade of anything taken with a sportfishing license.

The above information was extracted from:

> SUMMARY OF LAWS AND REGULATIONS RELATING TO SHELL COLLECTING IN SOUTHERN CALIFORNIA AND MEXICO (as of February 1984), compiled by Bill Perrin, 2947 Luna Avenue, San Diego, California 92117, and printed in Festivus vol. XVI(3):36, March 1984.

In Texas you will need to have a fishing license to collect oysters and you will need to know what areas are off limits. Because of local collectors' encounters with some law enforcement officers who apparently had only a basic knowledge of the Phylum Mollusca, it is suggested that when you go shelling that you be armed with a fishing license and a map of oyster collecting areas for the current season and update that each season.

Constance E. Boone in SEARCH AND SEIZURE
Texas Conchologist XX(3):63, April 1984.

MUSINGS

Come listen to this little tale about the lowly, humble snail. While crawling on a rotten log he isn't putting on the dog. He doesn't think, as on he labors, that he is better than his neighbors, nor that he is a little god; he knows he's just a gastropod.

Though he is host to liver flukes he doesn't merit our rebukes. He doesn't do as humans do and brag of blood that's really blue. He mentions not his family tree nor does he care for pedigree — admits his kin are slugs and whelks and doesn't try to join the Elks.

When cupid's bow lets fly a dart that strikes the snail's two-chambered heart, and he starts out his love to find, he doesn't seek a higher kind. He knows no name in upper crust will help him satisfy his lust, and genealogy can't prevail when he just wants another snail.

* * *

I look about me, see our land with junk car piles on every hand — billboards obstructing every view, a parking lot where trees once grew, polluted air, polluted streams, eroded soil and broken dreams, a rising crime rate, crowded jails. Are humans really smart as snails?

Euell Gibbons, author of
STALKING THE BLUE-EYED SCALLOP
and numerous other writings.

Contributed by E. H. Robinson

"THE SNAIL AND THE BEE" — A BEDOUIN FOLK STORY

Bruria Gal, Kibbutz Lahav, Israel

The following story was told to me by a Bedouin of a tribe living near Kibbutz Lahav in the Negev Desert, South Israel:

> When the snail leaves its shell in the "green" season (the short period of rains and new growth in the desert) — and only in this season, a bee comes and slowly packs the shell with pollen. After the shell is almost full the bee closes off the aperture with bits of grass or plants. In the dry season when there are no plants the bee uses the shell as an emergency store and takes pollen from there. After three months if you open the shell you will find small white worms inside. We don't eat them or make any use of them. The shells are found lying in the fields and also in the sand, besides rocks.

Another Bedouin from a different tribe in the Raseife area collects such shells after bees have used them and sucks out the contents.

* * *

AN ADDITIONAL NOTE TO THE BEDOUIN FOLK-TALE "THE SNAIL AND THE BEE"

Henk K. Mienis
Zoology Museum, Hebrew University of Jerusalem

The story mentioned above shows clearly how well the Bedouin observe what is going on in the surrounding natural environment. It is indeed in springtime, the only season when everything is green, that one can see solitary bees, especially of the genera _Osmia_ and _Hoplitis_, using empty landsnail shells to build nests in. This use can be so intensive that it is sometimes difficult to find a shell without a bee. While visiting Moshav Yashresh in April 1981 I noticed hundreds of empty shells of _Xeropicta vestalis joppensis_ (Schmidt, 1856) lying all over the place. About 80% - 90% of the shells contained a small bee of the genus _Osmia_!

This process of nestbuilding in empty shells of landsnails has been described before in Levantina (Bar, 1978). There he mentioned a case of nestbuilding in the shell of an aestivating _Trochoidea seetzenii_ (Pfeiffer, 1847).

That the Bedouin thought that the snails leave their shells in springtime is without doubt based on the widespread belief that slugs are simply snails that have left their shells temporarily.

Those of our members who would like more information on this subject are referred to the papers of Bar (1978) and Verdcourt (1978).

References:

Bar, Z., 1978. Nest building by the solitary bee _Osmia pinguis_ in aestivating Trochoides seetzenii in Israel. Levantina 14: 152-153.

Verdcourt, B., 1978. Snails and insects. 11 pp. (privately printed as a handout for an exhibition.)

LEVANTINA No. 44, June 1983
Israel Malacological Society

WONDERS FROM NORTHWEST AUSTRALIA

In 1981 Australia declared a 200 nautical mile economic zone around the continent. This followed similar declarations in recent years by a number of countries bordering on the sea. The new 200 mile limit has effectively doubled the size of Australia — the marine economic zone is as large as the continent itself. This expansion has brought the obvious problems of what to do with all the new areas, and the problem will be with us for the forseeable future. As a start, the Commonwealth Scientific and Industrial Research Organisation (C.S.I.R.O.) has begun an intensive investigation of the fishery resources on the continental shelf off northwestern Australia. Continental shelves are underwater shallow plateaus which usually do not exceed 200m in depth. The Northwest shelf extends many miles out to sea and its fauna is largely unexplored. The C.S.I.R.O. program has involved a large amount of trawling on the shelf, looking for potentially commercially valuable resources of fish and crustaceans. When the hauls are brought on board many other animals are also caught. Marine biologists from the Western Australian Museum have accompanied several of the 'Soela' cruises to collect these animals. Many molluscs have been found, several of which are the first records of their family in Australia.

Dr. Fred Wells, Dept. Malacology
W. A. Museum, Perth, W. A. 6000
In AUSTRALIAN SHELL NEWS No. 43,
p. 4, July 1983

(Included in the photographs accompanying the above article was one of Thatcheria mirabilis Angas, 1877. Previously known only from deepwater from Japan to the Philippines, the species was collected from several localities on the Northwest shelf. Other exciting finds carried at the time of publication only tentative identification. --ed.)

EXTRAORDINARY DISCOVERY IN THE GULF OF MEXICO

Foreword: In 1979 the deep-sea submersible "Alvin" was used in the Galapagos II expedition which discovered a thriving marine fauna where it "wasn't supposed to be" — far below the reach of sunlight, and in water to 650° F. The expedition was reported in the National Geographic Magazine of November 1979 under the chapter heading of "Incredible World of the Deep-sea Rifts." TV presentations began early in 1980. Dr. Ruth D. Turner, who was a member of the expedition, visited the New York Shell Club in December 1981, giving us more details, and showing us her slides. The present discovery in the Gulf of Mexico, also with "Alvin," may again adjust our theories on marine life. The report below, datelined New York, is from the New York Times News Service and appeared March 17, 1984.

Animals thrive on fire and brimstone in tepid waters off the Florida coast

By Walter Sullivan

A community of giant clams, tube worms and other exotic creatures, previously thought to live only where superheated water erupts from the floor of the Pacific Ocean, has been discovered in the Gulf of Mexico west of Florida, according to the Woods Hole Oceanographic

Institution.

The colony was found by accident last weekend by the submarine Alvin at a depth of 10,000 feet, where the edge of the continental shelf drops to the deep floor of the Gulf, a spokesman for Woods Hole said Wednesday.

It had been assumed until now that communities of giant clams, tube worms and other creatures found along volcanically active zones on the East Pacific floor depended on eruptions of scaldingly hot sulfur-laden water. According to a report from the Alvin's mother ship, Atlantis 2, however, water in the newly found community was only about four degrees Fahrenheit above the near-freezing temperature of deep oceanic water.

Giant clams and other creatures* that derive their energy from geothermal sources rather than from the sun recently have been found in shallower bodies of water throughout the world. But this is the first community found away from hot water.

What enables such communities to survive on volcanic energy, instead of solar energy that supports most life on Earth, is the presence of bacteria that digest sulfur compounds that spew from the geysers. The tube worms, which stand several feet tall in rigid shells, and the giant clams and mussels, harbor the bacteria in their bodies rather than living by ingestion.

According to Frank T. Manheim of the United States Geological Survey office at Woods Hole, Mass., large volumes of sulfur-laden water at 98 degrees Fahrenheit erupt at Mud Hole Springs, eight miles off Sarasota, Fla., and there is a small, cooler spring off Crescent Beach on the east coast. The tube worms were found 135 miles southwest of Tampa, at the base of the escarpment at the edge of the continental shelf.

Mannheim said he suspects that similar outpourings occur farther out to sea, where Alvin made its dives. The water in the Florida springs is thought to be heated as it percolates through deep formations.

After the discovery of the hot-spring communities on the Pacific floor, it was found that some clams live in other areas where hydrogen sulfide is plentiful — near sewage outfalls, for example — that provide a home for the sulfur-digesting bacteria. The report from the Gulf, however, is the first indicating that tube worms live anywhere except the sea floor in the eastern Pacific.

The specimens retrieved from the Gulf weren't so tall as those in the Pacific, some of which exceeded 10 feet, Woods Hole said.

*(Do not confuse these "giant clams" with the Indo-Pacific Giant Clam, Tridacna gigas. In the Galapagos Rift the clams were found to about 12 inches in length, had a somewhat oval, white shell and a red body within; one of the enormous dark-shelled mussels would comfortably fill a quart-sized specimen jar. We look forward to a report from Woods Hole that may possibly have a comparison of the fauna, and of the species, of these two areas on either side of the Isthmus of Panama. (—ed.)

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Staples, Cora - Ridge Rd., Butner, NC 27509
Star, Jordan -186 Parkway Dr., Roslyn Heights, NY 11577
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NEW YORK
SHELL CLUB
INC.

FOUNDED JAN. 1949

August 1984

Dear Members of the New York Shell Club,

I am pleased and excited in assuming the office of president of the New York Shell Club. It is my hope that the club will experience renewed vitality with our concerted efforts. I know we all are dedicated to strengthening the club's visability and insuring its future.

The coming year holds many challenges for both myself and all of you. From those of you who have been in the club for many years, we look for guidance and knowledge. From our newer members, like myself, we need the talents and enthusiasm to create new direction. And from all of you, we need the energy and commitment to keep the club moving towards its goal.

Some of the ways we will meet these challenges are through continued, informative and entertaining meetings such as Russell Jensen's program on shelling in Bermuda, scheduled for the September 9th meeting. Some new directions include day trips to local shelling locations and a visit to the shell museum in Delaware. Of course, we will continue to have members share their collections at the meetings and through the mail. This is just the beginning -- the ideas are unlimited, but we need everyone's help!

I look forward to meeting as many of you as possible. The best way of accomplishing this is to join us at the September meeting.

Sincerely,
MaryAnne Bastek
Mary Anne Bastek

Enclosure
NYSC NOTES 292

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 419, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETINGS: SUNDAY, SEPTEMBER 9, 1984 at 2:00 p.m.

SHELLS OF BERMUDA by Russell Jensen
of the Delaware Museum of Natural History

SUNDAY, OCTOBER 14, 1984 at 2:00 p.m.

COWRIES OF THE WORLD, from studies by W. E. Old,
presented by Walter E. Sage, AMNH.

SUNDAY, NOVEMBER 11, 1984 at 2:00 p.m.

TINY TREASURES FROM SPONDYLUS, a slide presentation
compiled by Bert C. Draper.

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HIGHLIGHTS OF THE MAY MEETING

President Monique Caubere, in anticipation of the election of officers to be held in June, announced that because of the demands of her work at the Queens Museum she would not be able to accept nomination for another term as president.

Monique noted that the program in June would be a presentation by Nick Katsaras on Marginella, and that Russell Jensen would visit us in the fall, speaking on shelling in the South Pacific. She also announced the annual AMU meeting, to be held in Norfolk, Virginia, July 22-27.

New member Nancy McTiernan was introduced.

The business meeting was adjourned at 1:33 p.m., and seven members went to the Brooklyn Children's Museum to help identify shells in collections the Museum had been holding untouched for many years.

Milton Werner, Recording Sec'y

HIGHLIGHTS OF THE JUNE MEETING

The 327th meeting of the New York Shell Club was called to order by Vice-President Mary Anne Bastek. Mary Anne noted that President Monique Caubere was absent because she had to work.

The first order of business was the annual election of officers, under the direction of Frank Nelson of the Nominating Committee. The Comittee presented the following slate: President - Mary Anne Bastek; Vice-President - Carol Lindsay; Treasurer - Theta Lourbacos; Recording Secretary - Milton Werner; Historian - Nick Katsaras; Directors - Frank Nelson, Monique Caubere, and Fred Cannon. Carol Lindsay agreed to continue as Corresponding Secretary, pro tem, since no candidate had been found. A volunteer will be sought at a later, better-attended meeting. There were no nominations from the floor, and the recording secretary was empowered by a show of hands to cast one ballot for the entire slate.

Mary Anne announced that the Janowskys have said that they will no longer have time available to handle the mailing of the NOTES. No alternative plan could be arrived at immediately. After discussion it was decided that we will sell the Addressograph machine and go to a simpler system. It was noted that both the NOTES Committee and Program Committee need additional help.

Mary Anne said that she would like to set up a Membership and Welcoming Committee, and hopes to arrange a meeting of officers during the summer to discuss the foregoing committees. She circulated a sign-in sheet, and will do this at each meeting.

Mary Anne read a letter from Jane Hultberg, Assistant Curator, of the Brooklyn Children's Museum, thanking the Club for its help in identifying shells. She also noted that Page 14 was blank on some copies of the June NOTES (No. 291), but they will be available at the September meeting. Theta moved that we thank the Janowskys for their past work on the NOTES. The motion carried. Mary Anne said that henceforth she will take responsibility for getting the NOTES copy to the printer. She proposed donating $200 from the auction proceeds to the Bill Old fund. It was so voted.

The Long Island Shell Club's Shell Show was announced, to be held at the Freeport Recreation Center, September 22 and 23.

The speaker was Nick Katsaras, whose subject was Marginella. Before starting, he introduced member Israel Bendersky, who was present after a long absence. Nick said that Marginellidae is his second-favorite family, after Conidae. He noted that the species range in size from 1/16th inch to five inches. He had examples of both extremes among the shells he displayed. In 1917, he said, 442 species were recognized, and in the 1978 Van Nostrand catalog, 518. The best locality for Marginella is West Africa. Australia is home to about 100 species, and they are found also in South Africa, South America, and Florida. Nick ended by showing slides of a number of species.

Carol Lindsay drew attention to a card from Mansfield Fuldner with the information that he and Celia had been left off the new membership list.

Milton Werner, Recording Sec'y

OOPS !

We are sorry for any omissions and/or inaccuracies contained in the roster that accompanied our June issue. Our treasurer writes that she is preparing a list of additions and corrections for us. Meanwhile:

Past President Mansfield Fuldner, a 25-year member, and his wife, Cele, still live at 440 Riverside Drive, Apt. 41, New York, New York 10027.

The new address for Dorothy and John Germer, who also have long-term membership, is, as of August 18: 13929 Trenton Road, Sunbury, Ohio 43074.

dr

REVIEWS:

THE FRESHWATER SNAILS OF CONNECTICUT

by Eileen H. Jokinen. 1983. Bull. 109, State Geological and Natural History Survey of Connecticut, vii + 83 pp., 35 figs. For a copy, send $5.00 to the Survey, Room 555, Dept. Environmental Protection, State Office Bldg., Hartford, CT 06106.

This compact guide to the freshwater gastropods of Connecticut fully covers the 26 pulmonate and nine prosobranch species found in the rivers and ponds of this New England state. Keys, including both shell and soft-part anatomy, clear line drawings, and brief, but adequate, descriptions assure easy identification of these 35 species. The introductory material covers factors affecting distributions and abundance, instructions on investigating and collecting freshwater mollusks, and how to preserve and dissect specimens.

The booklet presents distributional maps for each species and an appendix giving the water conditions and species present in about 150 ponds and lakes and the streams running into three major rivers. A very large and useful bibliography will allow future students to delve into the still-existing mysteries of the Connecticut freshwater snails. A restudy of the Physa (or Physella) species, including ones possibly introduced from Europe, may be in order.

This extensive survey puts on record the physical and biological conditions of the freshwater bodies of the State, and records the mollusk inhabitants which are so useful as ecological indicators.

R. Tucker Abbott
American Malacologists, Inc.
in NAUTILUS 98(2):79, April 1984.

(It is exceptional to find such detailed ecological notes as those presented by Ms. Jokinen; the information should prove most useful in observing the freshwater mollusks of neighboring areas as well as Connecticut. --Ed.)

MARINE BIVALVE MOLLUSCS OF THE CANADIAN CENTRAL AND EASTERN ARCTIC: FAUNAL COMPOSITION AND ZOOGEOGRAPHY

by Irene Lubinsky. Canadian Department of Fisheries and Oceans, Ottawa. 1980. 111 pp., 11 plates, 10 figures, 42 maps. $11.70 Canadian.

This useful volume is a detailed survey of the 64 species of marine bivalves of the shallow water region of the Arctic and Atlantic oceans between Parr Inlet in the north, Cape Bathurst in the southwest, and the Strait of Belle Isle in the southeast. The shell morphology of individuals and populations and the distributions of species are presented. The zoogeography of these bivalve mollusks is discussed and illustrated on the basis of the Wisconsin glaciation of the region and present characteristics of the arctic and subarctic marine waters. The data is based on expedition reports since 1819 and on the collections of these expeditions and of museums in Canada and the United States.

A nine-page introduction gives the history of Canadian Arctic exploration, including a summary of published records, a subdivision of the Arctic faunal province, mention of mollusks identified by the author, and a discussion of the marine shallow region. The 42-page systematic description of bivalves gives the currently accepted name of each species, the original name, synonymy, references, and distribution records and maps picturing this distribution. Published records, new records, and remarks and systematic discussion where warranted complete this section.

The 17-page zoogeographic section discusses patterns and origins of bivalve distribution, the effects of Late-Wisconsin glaciation, Canadian Arctic and Northwest Atlantic zoogeographic zones, and the relation of Canadian Arctic bivalves to those of the Northwest Atlantic and neighboring Arctic regions. The author has done excellent work in her researches of this seldom-studied region. This book will nicely complement Bernard's work on Eastern Pacific bivalves.

Walter E. Sage

CATALOGUE OF THE LIVING BIVALVIA OF THE EASTERN PACIFIC OCEAN: BERING STRAIT TO CAPE HORN

by F. R. Bernard. Canadian Department of Fisheries and Oceans, Ottawa. 1983. 102 pp. $10.50 Canadian.

This compilation represents the first up-to-date systematic catalog and primary bibliography of the 1,308 species of living bivalves recognized from the high intertidal zone to 2,000 kilometers offshore from Bering Strait, Alaska to Cape Horn, South America. The current name for each species is listed in bold type, with the original name and synonyms arranged chronologically. Distribution records, thermal ranges, and oldest fossil occurrence are updated from recent literature and museum and private collections. Replacement names are provided for six preoccupied specific taxa, and thirteen changes are made in superfamily and subfamily names. Homonyms have been omitted and species merged, but the author has let stand several incorrect generic names, pending the establishment of new taxa. Among the changes is the use of Panope abrupta (Conrad, 1849) for P. generosa Gould, 1851.

A six-page introduction gives the format used, origin and classification of bivalves, acknowledgements, collections consulted, and abbreviations used. A two-page outline of classification follows, listing subclasses, orders, superfamilies, families, and subfamilies treated. One printing error is noted here — the superfamily Cyamiacea is listed as a subfamily. The bulk of the work is the 58-page systematic catalog. In addition to recognized species in bold type, extra-limital and incorrectly recorded taxa are listed. Four pages of notes explain some particular points of the systematic catalog. Two pages of references cited, and thirteen pages of taxonomic bibliography, covering primary descriptions and replacement names for species, only add to the value of this book. A seventeen-page index concludes this volume.

This superb effort will prove an invaluable aid to students of bivalves, collectors, and anyone engaged in managing mollusk collections. The care and scholarship employed here is certain to stimulate further research. The very modest price will enable anyone interested to purchase and utilize the compilation.

Walter E. Sage

SHELL SHOWS

September	22 - 23	The Long Island Shell Show at the Freeport Recreation Center, Merrick Road, Freeport. Inquiries: P. J. Ehalt, Chairman (516)546-2260.
October	13 - 14	The West Coast Shell Show in Santa Barbara will be joining forces with the Fiesta of Gems at the Earl Warren Showgrounds, located at the Las Positas exit of Highway 101. Inquiries: Show Committee, P.O. Box 30191, Santa Barbara, California 93130. FESTIVUS XVI(5):62, May 1984 San Diego Shell Club
October	12 - 14	The Cincinnati Shell Club will sponsor the Third Tri-State Shell Show, at Northgate Mall. The LITTORINA 9(3):2
October	20 - 21	The Gulf Coast Shell Club of Panama City, Florida, at the Panama City Mall. The LITTORINA 9(3):2

THE PEARLY NAUTILUS SURVIVED, BUT HOW FAST DOES IT GROW?

Scientists and poets alike have speculated for centuries about how fast the pearly nautilus, the chambered creature found in the warm waters of the South Seas, grows. The American writer, Oliver Wendell Holmes, postulated — in his poem, "The Chambered Nautilus," — that a chamber is added each year. British scientists in the mid-1960s inferred from the amount of liquid pumped out and gas replacement that one chamber per fortnight is added.

Neil H. Landman, assistant curator in the Department of Invertebrates, American Museum of Natural History, finds that his data agrees more with Dr. Holmes's estimate, though based on much more precise information. In the April issue of NATURE magazine, Dr. Landman reports the results of a recently completed study done with J. Kirk Cochran of the Marine Sciences Research Center at the State University of New York, Stony Brook.

Using the activity ratio of polonium and lead as a chronometer, it was determined that the rate of formation of new chambers ranged from 100 to more than 290 days. Based on these rates, the time for a nautilus to reach maturity would be more than 10 years.

In his research, Dr. Landman has specialized in the life history and evolution of the nautilus and its extinct relative, the ammonite. The nautilus is the only form of externally shelled cephalopod still living. During the Mesozoic Era, more than 100 million years ago, ammonites were as plentiful as snails and clams are today. The same cataclysmic event that brought about the extinction of dinosaurs also wiped out ammonites, but spared the evolutionary line leading to the modern nautilus.

Dr. Landman speculates that the reason the nautilus-like animals were spared, while other ammonites perished, may be the differences in early size and development.

Says Dr. Landman: "Among the group of animals that became extinct at the end of the Mesozoic, surface water plankton were among the most affected. Because ammonites hatched at a small size (approximately 1/25 of an inch), they may have spent a portion of their early life as part of this plankton community. The nautilus, on the other hand, hatches at a much larger size (about one inch in diameter) and is an active swimmer in deep water, making its chances for survival much greater."

Dr. Landman has an article, "Not to Be or to Be?," in the August issue of NATURAL HISTORY magazine [93(8):34-41] which expands further his theory on ammonite extinction. Look for the issue with the living Nautilus pompilius pictured on the cover.

From: The GRAPEVINE 41(3):2 of The
American Museum of Natural History

FOSSILING AT SARASOTA, FLORIDA

If you are interested in collecting fossil marine mollusks near Sarasota, Florida, we suggest that you write for information to: Management, Great Newburn Marl Pit, Sarasota, Florida.

We understand that there is a charge of $2.00, and that hard hats are required.

SCHISTOSOMIASIS/BILHARZIASIS

(Schistosomiasis = from Schistosoma, a genus of trematode worms.
Bilharziasis = for Dr. Theodore Bilharz, a pioneer in blood fluke studies. Synonymous with schistosomiasis.
Fluke = any of various flattened, leaflike, lanceolate, parasitic trematode worms.
. . . Webster)

The suffering caused by blood flukes (schistosomiasis) has been known and recorded since ancient times. At present, human blood fluke is one of the most serious parasitic human afflictions.

Blood fluke, as it relates to humans, has a cycle in which the adult trematode worms live in the mesenteric veins surrounding the intestine (in Schistosoma mansoni) or in the blood vessels around the urinary bladder (in Schistosoma haematobium). The sexes of this worm are separate, and the female is a virtual egg-laying machine, producing eggs by the thousands. Many of the chitonous and spined eggs find their way out of the human body with excreta; too many others fail to leave their human host and are the cause of most of the pathology associated with the disease. Those eggs that do reach the water of a canal or a drain, often during a normal course of human elimination, hatch and must find a suitable snail to continue the life cycle. In the intestinal variety (Schistosoma mansoni) the snail host is a planorbid form called Biomphalaria, while the bladder parasite (S. haematobium) must enter a spired Bulinus snail. In the snail, the parasites develop reproductive structures and after about a month the infective larvae of the parasite, called cercariae, emerge from the snails; cercariae are often "shed" in prodigious numbers. Humans become infected when their skin is placed in contact with water contaminated with the cercariae. Once infected, a human may pass eggs of this schistosome parasite for many years.

(Schistosomiasis is prevalent in Egypt, and offers critical health problems in other parts of Africa, the Far East, and the Middle East. It is uncommon in North America, where the carrier snails are absent, but is present in Latin America. — Ed.)

> The above information on the biology of the blood fluke was extracted from a report by Henry van der Schalie, 1972 — World Health Organization Project Egypt 10: A case history of a schistosomiasis control project. The Careless Technology: Doubleday/Natural History Press, pp. 116-136.

Dr. Walter H. Jacobs sent us a leaf from the New York State Journal of Medicine, October, November 1983 [83(11,12):1147-1148], carrying an article: Schistosomiasis: new therapies for an old disease, by Pascal James Imperato MD, Deputy Editor. The writer discusses three new drugs that hold promise in the treatment of schistosomiasis, describing conditions for and method of use. As press reports have given bare mention, we excerpt the items below and refer those interested to the complete article.

> During the past several years, there have been revolutionary changes in the treatment of schistosomiasis. The older drugs, particularly the antimonials, which were toxic, administered parenterally over a long period of time, and only partially

effective, have now been replaced by three newer drugs. These drugs, which were widely field-tested overseas during the 1970s, are metrifonate, oxamniquine, and praziquantel.

The three newer drugs differ in their effectiveness against the three human disease-causing schistosomes: Schistosoma haematobium, S. mansoni, and S. japonicum.

As with all new drugs, there remain unanswered questions about long-term side effects. Meanwhile, those involved with the treatment and control of schistosomiasis remain optimistic and hopeful.

NEW ENGLAND'S RED TIDE

Each year inshore shellfishing grounds are closed when red tides occur. Red tides are caused by population explosions of microscopic plants which become so numerous that they give the water a tint, most often red, hence the name. University of Rhode Island Sea Grant researchers have been studying the toxins of these organisms and their ecology for years. The following is excerpt from a radio interview with Dr. Ted Smayda of the URI Graduate School of Oceanography.

Q: What is known to date about these organisms?

A: The red tide bloom is something that often happens overnight where you suddenly see that the water is colored red. However, it may be discolored yellow or even green or brown. The feeling is that something leads to an explosive growth of these small microscopic algae resulting in water discoloration. In many instances it might have been associated with increased rainfall, with increased discharge from rivers and streams, followed by several days of very cloudless and very bright weather conditions. The evidence strongly suggests that perhaps there are two and up to four different mechanisms which are responsible for triggering red tide blooms.

Q: What's happening in New England with red tide?

A: The poisonous red tide species, Gonyaulax tamarensis, is spreading south. The significant problem began off Gloucester about 10 years ago — the first outbreak of paralytic shellfish poisoning known from that area. It has been known for some time in the Gulf of Maine. Since then the causative species has been gradually extending its range to the south where now it has turned the corner to Cape Cod and is moving into southern New England waters. Dr. Shimizu (of URI) has evidence that suggests that even though the organism is spreading to the south, the populations are becoming less poisonous as they move to the south.

From: OPINION: SPLIT AND HOIST, in URI
Commercial Fisheries Newsletter May-June 1984

(See also: A Possible Control for Red Tide? by Ed Cowles, page 12 of NYSC NOTES No. 290.)

JUST A REMINDER: All NYSC dues are due in September.

MOLLUSKS IN MEDICINE

Aplysia

One of the scientists who shared in an Albert Lasker Award for basic medical research was Dr. Eric R. Kandel of Columbia University. Dr. Kandel has worked with Aplysia, a sea snail whose small brain contains unusually large nerve cells. He has shown that the basic structure of the brain is fixed at birth, but that different learning processes change the brain by strengthening or weakening the interconnections between brain cells. The results have implications for understanding of the human brain.

From reports by E. Edelson in NY Daily News,
H. M. Schmeck, Jr. in NY Times, Nov. 17, 1983

Mercenaria mercenaria, Mya arenaria, Spisula solidissima

Thousands of now routinely discarded clam stomachs could be a future source of enzymes important in basic research and treatment of genetic disorders. University of Rhode Island's Sea Grant investigators have found that the enzymes, now available solely from Japan, are present in the stomachs of New England's quahogs, soft-shell clams, and surf clams.

Eleven enzymes have been identified and characterized by a team headed by Joel A. Dain, professor of biochemistry. Called glycosidases, they are carbohydrate hydrolyzers, or substances which break down complex carbohydrates into simple sugars such as glucose and galactose.

One use of glycosidases is to change blood cells from one type to another; another use is for people with genetic defects whose bodies cannot naturally produce these enzymes. For one such defect, lactose intolerance or the inability to digest milk sugar, enzymes are not commercially available.

Using traditional laboratory procedures, Dain and his team have separated out the enzymes from clam stomachs to find the best sources for each enzyme. Separation procedures are being developed suitable for industrial use and which can meet strict Food and Drug Administration standards.

From: MARITIMES 28(2):7, May 1984,
Graduate School of Oceanography, URI

MARYLAND DATES A SHELL

Legislation has been completed and signed for the authorization, effective in October 1984, of Ecphora quadricostata Say from the Miocene as Maryland's new State Fossil.

Ecphora quadricostata is one of the few fossil shells to retain most of its color and, because of this, all of its beauty. The National Capital Shell Club (through its past president, Raye Germon) proposed this beautifully sculpted species as the State's official shell. As a Marylander herself, Ray worked with unflagging interest and zeal to make others see the same beauty in a fossil shell and to give it official status as a State symbol, becoming a proficient lobbyist as well as an ardent representative of the Club.

From: NCSC Newsletter 77, Summer 1984

CYPRAEA GRACILIS: AN INTERESTING ADDITION TO THE MOLLUSC FAUNA OF THE MEDITERRANEAN COAST OF ISRAEL

Henk K. Mienis, Zoological Museum, Mollusc Collection,
Hebrew University of Jerusalem, Israel, and
Benjamin Singer, Sderot Ben Zion 44/3, 76410 Rehovet.

Recently Blöcher (1983) reported the find of a single, dead, but very fresh specimen of Cypraea gracilis Gaskoin, 1849 on the south coast of Turkey. This record was received by most cowry collectors with some reservation. It was not the identification which was questioned. The photographs of Blöcher's specimen (which appeared among others in Hawaiian Shell News, Xenophora and in La Conchiglia) show that we are indeed dealing with the Indo-Pacific Cypraea gracilis. The mere fact how to interpret the find of a single specimen led to some reservation.

In the past other Indo-Pacific cowries have been recorded from the Mediterranean: Cypraea moneta Linnaeus, 1758; Cypraea caurica Linnaeus, 1758; Cypraea pantherina Lightfoot, 1786 and Cypraea erosa Linnaeus, 1758, to name only a few. However, of these only Cypraea caurica seems to have established itself in the Mediterranean Sea. So what about Cypraea gracilis? One living specimen was taken at Hadera in 1981; it is in the collection of Tel Aviv University. Do we have to consider it a well established immigrant from the Red Sea, or is it only an occasional migrant to the Mediterranean Sea?

We do not have to wait long for an answer, because only this summer (1983) more than twenty specimens of Cypraea gracilis have been found on the Mediterranean coast of Israel. Unfortunately, all were empty shells.

Another specimen was offered for sale by a local fisherman to one of the members of the Israel Malacological Society. This offer was refused because the accompanying locality data were questioned by the prospective buyer at that time. There exists at least still another shell of Cypraea gracilis which has been found alive along our Mediterranean coast. It is figured in full color in the recently published 4th volume: Aquatic life, of the illustrated encyclopedia "Plants and animals of the land of Israel" as Erosaria spurca (sic!). So far we have failed in locating the whereabouts of this specimen, so we can not tell where and when it was found.

Most of the shells were found in holes of rocks in very shallow water (0 - 1 m depth). This corresponds with Blöcher's find in Turkey and what is known about its habitat in the Indo-Pacific (Burgess, 1970). Also in its original area of distribution, the Indo-Pacific, it lives on or under rocks in very shallow water. In this aspect it occupies a niche in the Mediterranean which is not inhabited by any of the autochthonous species. This might be the reason why it has been collected in the last months in relatively large numbers.

From our data it is clear that Cypraea gracilis may be placed on the list of Indo-Pacific species living today in the Mediterranean Sea. It is therefore the sixth species of the genus Cypraea now known to live in the Mediterranean, the others being Cypraea spurca Linnaeus, 1758; Cypraea pyrum Gmelin, 1791; Cypraea lurida Linnaeus, 1758; Cypraea achatidea Sowerby, 1837, and Cypraea caurica Linnaeus, 1758.

We wish to thank Prof. Al. Barash (Tel Aviv), Dr. Z. Lewy (Jerusalem), Mr. E. Heiman (Rishon le Zion) and Mr. J. Rappaport (Tel Aviv) for supplying us with data concerning material present in their collections or for giving us any additional information.

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Blocher, M. 1983. Cypraea gracilis in the Mediterranean? Levantina No. 43: 503-504.

Burgess, C. M., 1970. The Living Cowries. 389 pp. New York/London.

Fishelson, L. (Ed.), 1983. Aquatic life. Plants and Animals of the Land of Israel, 4: 342 pp., Tel Aviv. (In Hebrew)

Reprinted from LEVANTINA No. 46: 535-537, October 1983, Newsletter of the Israel Malacological Society and the Municipal Malacological Museum, Nahariya.

UPDATE ON MOLLUSKS WITH INDO-PACIFIC FAUNAL AFFINITIES IN THE TROPICAL EASTERN PACIFIC — II

Donald R. Shasky

(The following is adapted from a supplement (printed in FESTIVUS) to a paper presented by Dr. Shasky at the 1983 annual meeting of the Western Society of Malacologists in Redlands, California. —Ed.)

This past April (1983), I was privileged to be able to spend 6 1/2 days SCUBA diving around Cocos Island. As far as I can determine, I was the first diver-malacologist to explore these waters — in other words, virgin territory. In June Dr. Michel Montoya also dove there (I worked the hard bottom and he the soft bottom). Dr. Montoya is an agronomist with the Inter-American Institute for Cooperation on Agriculture. He has a paper in press titled "Los Moluscos Marinos de la Isla del Coco, Costa Rica. Lista Anotata de Especies" listing 118 species.

Cocos Island is located approximately 300 miles south by southwest of Puntarenas, Costa Rica, and is the largest uninhabited island in the world. It is about 20 square miles. Its annual rainfall is 22 feet (7000 mm). It has 200 waterfalls and a number of bays and inlets. In April the water temperature at all depths was 85° F.

My diving was done from the 82 foot motor-schooner, Victoria, built in Sweden and manned by a Swedish crew. It takes up to eight divers from Puntarenas to Cocos Island. The accommodations are adequate and the food is excellent.

In our long list of mollusks, the following known species have not been previously recorded in the Eastern Pacific:

Viriola abbotti (Baker & Spicer, 1935). Described from Samoa; reported living in Hawaii by Dr. E. Alison Kay.

Scalenostoma subulata (Broderip, 1832). According to Dr. Anders Waren of Sweden, this species has 18 synonyms. Up until now this has been found in all tropical seas with the exception of the Eastern Pacific.

Cypraea talpa Linnaeus, 1758. Altogether I found 5 living specimens of this and Captain Richard Callaway (of Balboa, Panama) who was with me, found 2 more.

Cypraea n. sp. Being described in the Venus by Dr. Burgess, who tells me that this is found from Australia through the central Pacific.

Charonia tritonis (Linnaeus, 1758). Found living at 120 ft.

Favartia garrettii (Pease, 1869). Up until now, this has been known only from the Hawaiian Islands. I have had an unidentified Favartia in my collection for some time from La Cruz de la Huantecoxtle, which is approximately 30 miles north of Puerto Vallarta, Mexico, which also proves to be this species.

It may be of interest to you that Dr. Montoya and I will be returning to Cocos Island next March (1984) for 21 days. During that time we will have the best low tides of the year which will give us an opportunity that we did not have previously. I expect, that from this proposed trip, there will be a part III under this title next year.

We are at present preparing an update of Dr. Montoya's Cocos Island checklist that will increase the known species by at least 100.

From: FESTIVUS XV(11):109-110, Nov. 1983
Publication of the San Diego Shell Club.

SUBTIDAL GASTROPODS CONSUME SULFUR-OXIDIZING BACTERIA: EVIDENCE FROM COASTAL HYDROTHERMAL VENTS

by Jeffrey L. Stein, Dept. of Biology, California State Univ., Long Beach, California. Published in Science, 17 Feb. 1984.

ABSTRACT

"The black abalone (Haliotis cracherodii), a commercially important shallow-water gastropod common off White Point, Southern California, is found frequently at subtidal hydrothermal vents within mats of filamentous sulfur-oxidizing bacteria. Foraging vent abalones actively consume the bacteria and confine their nightly feeding forays to bacterial mats surrounding the vents. The growth of abalones consuming the sulfur bacteria exceeds that of control individuals consuming microalgae and is comparable to reported growth rates of abalones consuming macroalgae. Thus, off White Point, the black abalone may derive a portion of its nutrition from the subsidy of geothermal energy."

The paper reports that the purple sea urchin (Strongylocentrotus purpuratus), although very numerous in the area, avoids the vents and does not compete for the sulfur bacteria, leaving this nutrient for the abalones and a few other gastropod mollusks — the California sea hare (Aplysia californica), the giant keyhole limpet (Megathura crenulata), and the top snail Norrisia norrisii. In the intertidal zone, bacterial mats surrounding hydrothermal vents appear to be grazing grounds for several other limpet species.

Edward F. Cowles

LARGEST PEARL

A pearl weighing 14 lbs. 1 oz. and 9 1/2 inches long by 5 1/2 inches in diameter was found at Palawan, Philippines, on May 7, 1934, in the shell of a giant clam. It had been the property since 1936 of Wilburn Dowell Cobb who valued it at $4,080,000 but it was sold upon his death for $200,000 in 1980. (Ripley's "Believe it or not!")

DOG GONE DIGGER

Loner, a German shepherd now five years old, is the only dog in the world with a clamming license from the Town of Islip. A few years ago Loner's master, John Kehoe of Blue Point, Long Island, suffered a back injury that prevents him from doing work as rigorous as digging clams out of the Great South Bay. But he found a way — he trained Loner to dig the clams. The dog wades into shallow pools, roots around with his snout until he finds a clam, digs it up with his paws and carries it to shore in his mouth.

In September of 1982 Kehoe applied for a $75 commercial clamming license for Loner. He was refused, someone in the Town Attorney's office saying that, under the law, only a human could be licensed. Kehoe called the White House, suggesting that by training animals to act as their eyes and ears and arms and legs, disabled people could get off Social Security. This, Kehoe figured, would sound great to the Reagan administration.

He was right — a White House aide called the Brookhaven Town Clerk, who did some research and discovered that a dog could be construed as a clamming implement under the ordinance, and that since hunting dogs don't have to be leashed, neither do clamming dogs. The license was granted in December, 1982.

Now Loner is in the news again. The clam-digging dog has been named official mascot of the New York State Statue of Liberty Centennial Commission. "The commission decided to name Loner its mascot when it learned of the animal's unique aquatic talents, its ability to clam, and its remarkable feats of staying under water for considerable periods of time," said a commission statement on the honor.

Arf!

Don Singleton, NY Daily News, Dec. 15, 1982
Jerry Cassidy, NY Daily News, April 1, 1984

TYPOS

There is a myth that, in the golden days before some war or another, the London Times paid a shilling to any reader who cut out and sent in a Times misprint. Poppycock. There have always been marvelous misprints in the Times. ... My own favorite was in the learned piece about the Dead Sea Scrolls, which referred to them throughout and in every edition as "the Dead Sea Squirrels."

Philip Hope-Wallace of the London Guardian was the Professor of the Misprint ... His favorite concerned his description of Tosca as being "like a tigress robbed of her whelps." The editor, a feminist, changed "tigress" into "tiger." The printer, on his own initiative, changed "whelps" into "whelks." So Tosca appeared "like a tiger robbed of his whelks."

Of course misprints are not a laughing matter. We bleed when they appear in our copy. They irritate. Sometimes they obscure the meaning, which is the Sin against the Word. But on occasions they have a surrealist poetry, and add to the gaiety of nations.

Philip Howard in The Times, London
Quoted from Reader's Digest
Article and clipping undated.

NOAA/USGS MAP OCEAN RIDGES OFF OREGON, WASHINGTON COASTS

Researchers from the National Oceanographic and Atmospheric Administration and the United States Geological Survey have mapped the active volcanoes that rise from the ocean floor off Oregon and Washington states. The volcanoes are among the distinctive features of the mountainous Gorda and Juan de Fuca ridges located just over 2 kilometers deep and starting about 113 kilometers offshore.

Dr. Alexander Malahoff, chief scientist with the National Ocean Survey division of NOAA, said that this research has given scientists the first detailed view of the ocean terrain along the two ridges, a jagged strip extending from northern California into Canadian waters.

"In the Gorda Ridge, we have evidence for very recent vulcanism, in lava flows and cones,"Malahoff said. A small ROV (remotely operated vehicle) provided researchers with photographs of fresh lava flows 113 km off Coos Bay.

Volcanic activity on the northwest's seafloor leads to eruptions on land, Malahoff pointed out. "The volcanic activity you experienced recently in the northwest" (Mt. St. Helens. -ed.) " is a result of the Pacific seafloor crust — generated by the volcanic activity on the seafloor — being thrust under Oregon and Washington."

In addition to the photographs of lava flows, researchers also collected extensive computer mappings of both ridges, which reveal the location of numerous underwater volcanoes of "up to several thousand feet" in elevation. Other geologic features include mountain valleys, rifts and faults.

Malahoff says he is particularly struck by the number of hydrothermal vents — underwater hot springs — that were discovered in the Juan de Fuca Ridge.

"We found six areas of active hydrothermal venting in a stretch perhaps a couple of hundred miles long, which is only a tiny section of the ocean floor. And there were good indications of polymetallic sulfide deposits," he said.

— Condensation of an unsigned report on the Ocean Research page of Sea Technology 25(1):70 Jan. 1984

These NOAA/USGS surveys were made in August 1981, October 1982, and August 1983 and comprised, with other works, the important preliminaries to the Canadian-American seamount expedition (CASM) of the summer of 1983. The CASM expedition is reported in Sea Frontiers 30(4):240-247, July-August 1984, in an article by Alan Harman entitled "CASM's deep dive finds chasm of life." Exploration was concentrated on one of the submerged mountains along the Juan de Fuca Ridge, at the juncture of two tectonic plates. The site, which has been named "Axial Seamount," is 310 miles southwest of Vancouver and 310 miles west of Astoria, Oregon, and is described as an area with "vents within a fissure where hydrothermal activity bursts through the ocean floor."

Observations were made using the Canadian submersible Pisces IV (mother ship, Pandora II), and at a depth of approximately a mile, in sulfur-rich water with temperature ranging between 45°F and 95°F, they found living creatures. There were tube worms 4 - 5 feet long and similar to those found at the Galapagos vent, but deemed a new species and named Pogonophera vestimentifera; a much smaller worm had attached to the tubes and it, too was a new species which has been named Polycheta ampharetidae. There were also a few other worms, two snails, limpets and a protozoan. The biologists were puzzled by the lack of clams — only one was seen — which have been numerous at other vents.

(Sea Frontiers is published by the International Oceanographic Foundation, 3979 Rickenbacker Causeway, Virginia Key, Miami, FL 33149.)

Dorothy Raeihle

COLLECTOR'S ITEMS

Two names mentioned in a paragraph quoted from Sea Secrets, I.O.F., 28(3), May-June 1984, were those of "huge tube worms (Riftia pachyptila) and giant white clams (Calyptogena magnifica) collected at deep sea vents." Unfortunately no location was given, but now if you see either name on a dealer's list, at least you'll know what it is.

Dorothy Raeihle

COVER UP?

Deep sea trenches formed by converging plates in the earth's crust might be used for hazardous waste disposal, according to Dr. Thomas Hilde, a geophysicist at Texas A&M University.

Hilde has found that giant depressions are created in the descending crustal plates as they bend downward into the trenches. These depressions, or "grabens," can be found in more that 50 percent of the Pacific area trench system. Hilde's theory is that the grabens, which descend beneath the overriding land mass plates, could be used to carry waste deep into the earth's interior — so deep that the deposits would return to the earth's surface only through volcanic action and only after 1 to 5 million years. No nuclear waste would be dangerous after that time, Hilde stated.

From: Sea Technology 25(6):54-55
Compass Publ. Inc., Arlington, VA

SEE YOU LATER ...

Last summer when Jack Foehrenbach was searching the area of Massapequa Lake for Corbicula (See NOTES 287.9-10), he was disappointed that he could not gain access to the waters immediately south of Montauk Highway, where the waters of the lake discharge into the brackish waters of creek and canal. Perhaps it is just as well. In mid-July of this year, just a few days after another check for Corbicula, a 4 1/2 foot alligator was taken from the very waters he had wanted to explore. Environmental workers had a tricky time taking the active beast, which was finally tied up and taken to a zoo. How the reptile came to be there is still a mystery.

Dorothy Raeihle

PHILADELPHIA SHELL SHOW OCTOBER 20 - 21

The Philadelphia Shell Club announces their Shell Show to be held October 20 - 21 in the Great Hall of the Creese Student Center, Drexel University, 32nd and Chestnut Streets, Philadelphia.

A NEW-OLD SPECIES FOR THE NE FLORIDA CHECKLIST

Harry G. Lee

Admittedly it has gotten a bit difficult to find mollusks to add to our on-going Jacksonville Shell Club Northeast Florida Checklist. We've had to exploit less accessible habitats (usually below 100 ft. depths) and obscure (under 5mm in most cases) taxa for the last ten percent of our present grand total of 522 species. The following experience convinced me that even the most mundane and simple shelling can produce rewarding and unexpected results.

For a few years I had either read (Morrison, 1971) or been told of the existance of two separate species of coquina (Donax or "periwinkles" as local beach residents call them) clams occurring on our beaches. I think the first notice came from Mrs. Connie Boone of Houston, who spoke with me at the 1980 Shell Show banquet. It seems she was in quest of topotypes (specimens from the type locality) of Donax parvula Philippi, 1849. What amazed me was that she planned to get them in front of Howard Johnsons-by-the-Sea and I had none in my collection. A year later Paul Mikkelsen who, with his wife Paula, was exhibiting at the Shell Show, mentioned his interest in Donax and rekindled my fascination with parvula. He was quite convinced that there were two species "out there" and had spent many hours studying Donax on southeastern beaches.

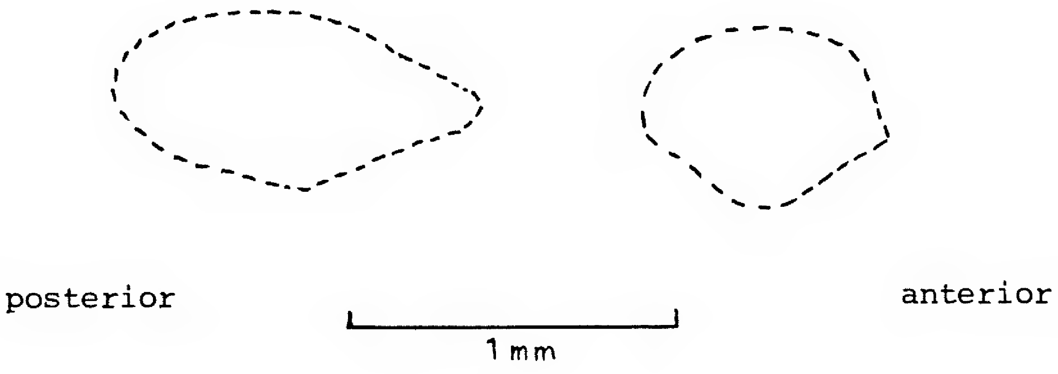
Paul provided me with Joe Morrison's 1971 study on Western Atlantic Donax, and I tried to familiarize myself with the ten species which occur from Long Island to Uruguay. Digging in the intertidal areas of Crescent Beach (near St. Augustine), I was able to find Donax in culinary quantities during the warmer months of 1981 and 1982 but could not be sure, even with Morrison's paper in hand, that I had anything other than the familiar Donax variabilis Say, 1822 among the thousands of living clams I'd harvested. Since coquina broth is tasty, the research was always rewarding, but eventually the conchological results became irksome.

Accordingly I decided to employ a more scientific approach. Five months ago I visited the same beach at extremely low tide and made a transect. By working at right angles to the water's edge I sifted about ten double handfuls of sand at intervals of about twenty feet. I was pleased to find two concentrations of living coquinas — one near the water's edge one almost one hundred feet inland in the mid-tide zone. Surprisingly few examples occurred between the two enclaves. I then concentrated my attention on the two populous samples of clams. The living animals appeared identical as they deployed their siphons and spade-like feet in small buckets of seawater. Each anatomic part was a homogeneous cream color. On the other hand, the shells of the sample from the lower zone were much smaller and less colorful than those from near the mid-tide line. Closer examination of the shells produced an exciting revelation. The vast majority of the shells comprising the lower sample (153 of 156 specimens) conformed to the description of parvula whereas 117 of 122 from the mid-tide sample were variabilis. The latter species has more conspicuous radial sculpture and posterior ridge — simple! Further differences include the occurrence of rayed shells in populations of variabilis and NOT parvula and a difference in the shape of the hinge ligament; see appendix. Well, it wasn't that easy when I had examined shells on previous occasions. My error had been to assume that the parvula were the babies. This time the availability of nearly "pure" lots allowed for (1) the appreciation of the consistency of the shell characteristics and (2) the comparison of shells of the same size belonging to each species. A precious few of the *variabilis* youngsters were in the size range of the typical *parvula*, about 7.5mm. The shell differences were just as vivid at this size as with the bulk of the sample (*variabilis* being about twice as big as *parvula*).

This ecological "zonation" of cohabiting *variabilis* and *parvula* populations has been discussed by Morrison and others. Furthermore, the lumping of the two species in collections made throughout their common range (North Carolina to SE Florida) was almost characteristic even in the Smithsonian holdings. Until 1971 most, maybe all, collectors were content to consider *parvula* as a juvenile *variabilis*. It took careful conchological study and ecological field work for Dr. Morrison to sort out this problem. He apparently was so pleased with the local colony of *parvula* that he disignated Jacksonville Beach as the type locality. Other species for which Jacksonville is the type locality include *Helicina orbiculata* (Say) and *Praticoella jejuna* (Say). Clearly *parvula* is no newcomer as I was later able to find fossil specimens at Washington Oaks State Park (Flagler County) and in the walls of Castillo de San Marcos in St. Augustine!

North of Cape Hatteras there is a coquina with habits quite like *parvula*. I collected this fellow, Donax fossor Say, 1822, in June 1957 at Stone Harbor, New Jersey. The shells of the two are very similar with *fossor* slightly more squared-off posteriorly. Dr. T. E. Pulley (1979) feels that the two are undifferentiable, and Dr. Morrison (1971) does not offer a convincing argument for their separation. I shall straddle the taxonomic issue and hereby designate our little coquina *Donax fossor parvula* Philippi, 1849, number (407) on our checklist of marine mollusks.

Appendix:



Camera lucida drawing of hinge ligaments of fresh *Donax*, the Donax measuring 7.5 mm. Left, *variabilis*; right, *parvula*. Valves shut, dorsal view.

Literature cited:

Morrison, J. P. E. (1971) *Proc. Biol. Soc. Washington* *83*(48):545-568.
Pulley, T. E. (1979) *Texas Conchologist* 15(2):26-35.

From: Jax Shell-O-Gram *24*(6):3-4

MANY THANKS TO THE JANOWSKYS

Dottie and Bob Janowsky joined the New York Shell Club in October 1969 — 15 years ago — and for 15 years have been active members and generous friends. They always helped put these NOTES together, and Bob has contributed many articles on interesting and rare shells. Bob also gave freely of his expertise, time, energy, and material too for the benefit of the club at our annual socials and auctions.

In December 1975 Bob rescued these NOTES from interruption when facilities were unavailable; a couple of years later the Janowskys again stepped forward to save us when the printer we were using went bankrupt. In recent years the Janowskys have handled all the work connected with the printing, and the mailing, of these NOTES. Now they are unable to devote time to these chores, and they are indeed due relief from these labors. The words "Thank you" are but a very small expression of our appreciation for all their tender loving care; we multiply it to A MILLION THANKS!

Dorothy Raeihle

WE NEED YOUR HELP

We are requesting all Shell Club members to please pay their dues for 1984-85 now. With the procedure adopted two years ago, ALL MEMBERSHIPS begin in September, and individual notices are no longer sent. When your dues are not paid during the early Fall months you take a chance of missing the December issue, as we cannot promise reminders — a costly and time-consuming operation.

Dues schedule:	Regular membership, individual	$6.50
	for each additional family member	2.00
	Corresponding membership	5.00
	Overseas membership	6.50

Dues may be paid at meetings, or checks sent to the treasurer, Theta Lourbacos, 66 West 94th Street, Apt. 20C, New York, New York 10025.

If you wish to pay dues for one or two years in advance, this will save you — and the Club — time and effort.

Thank you.

Theta Lourbacos, Treasurer

ADDITIONS TO ROSTER OF JUNE 1984

Crawford, Mrs. J.H. - 18 Stone Fence Rd., Bernardsville NJ 07924
Fuldner, Dr. & Mrs. Mansfield - 440 Riverside Dr., New York NY 10027
McMillen, Mr. & Mrs. David - Box 421, Eastham MA 02651
McTiernan, Ms. Nancy P. - 100 Remsen St., Brooklyn NY 11201
Tabakotani, Mr. Masao - 1-19-43 Utsukushigaoka, Midoro-Ku,
Yokohama, Japan 227

Changes in address:

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6	7	8	9	10	11	12
13	14	15	16	17	18	19
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27	28	29	30	31		

FEBRUARY

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MARCH

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NEW YORK SHELL CLUB
INC.

FOUNDED JAN. 1949

November 1984

Dear Members of The New York Shell Club,

Well, it's hard to believe but 3 months have flown by and another newletter has gone out (thanks to the great efforts of Dorothy and George Raeihle).

Our meetings so far have been enjoyable and interesting. We have been to Bermuda with Russ Jensen, down memory lane with Bill Old's cowrie slides presented by Walter Sage and off the coast of California with slides of Spondylus (even if we weren't quite sure what we were watching). Hopefully, our future meetings will be even more successful!

Also, we are planning to visit the Delaware Museum in the Spring since Russ Jensen has offered us a tour. Details will be given in the next newsletter. Our annual Shell Auction will be in April and Dorothy Jensen has once again graciously given us the use of her dance studio. Carol Lindsay has volunteered to chair this annual event. Please contact her to see how you can help!

Let me take this opportunity to wish all of you joyous holidays and a new year full of health and good shelling.

Hope to see you at a meeting soon,

Mary Anne Bastek

Enclosures
NYSC Notes 293

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 419, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETINGS: SUNDAY, DECEMBER 8, 1984 at 2:00 p.m.
Tiny Treasures from Spondylus
A Slide Presentation

SUNDAY, JANUARY 13, 1985 at 2:00 p.m.
Molluscan Camouflage
A Slide Presentation

SUNDAY, FEBRUARY 10, 1985 at 2:00 p.m.
The Nautilus
Presented by
Dr. Neil Landman

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HERMAN SEID 1903 - 1984

It is with sadness that we report the passing of our member Herman Seid, who died September 23rd while vacationing in Venice, Italy.

Mr. Seid was a native of Brooklyn, attended Stevens Institute of Technology, and received his law degree from St. Lawrence Law School, the predecessor of Brooklyn Law School. He retired in 1969 after a long association with the Carrier Corporation.

Mr. Seid and his wife, Shirley, joined the New York Shell Club 20 years ago. In recent years they divided their time between Connecticut and Sanibel, and attended our meetings between trips. We will long remember his friendly personality.

Our deepest sympathy is with Mrs. Seid and their sons, John and Richard.

(A brief biography appeared in the N.Y. Times September 28, 1984.)

dr

MARY ELIZABETH YOUNG 1921 - 1984

Word has reached us of the death, in North Carolina on August 30th, of Mary Elizabeth Young. She had suffered a long illness. Known familiarly as "Emmy" - for her initials, M. E. - she was managing editor of the first edition of "American Malacologists," the well-known register of malacologists and shell collectors. Her home was in Falls Church, Virginia, where she was owner and operator of "The Shell Cabinet."

dr

AUSTRALIA BANS ALL EXPORTS OF WILDLIFE

From a news report of September 15th in the Western Mail, Western Australia, plus other correspondents, we learn that shells are included in the Wildlife Protection Act, enacted recently, and that a total ban is in effect on the export of Australia shells. The Act was in the process of formulation for about two years before it was introduced May 1st. However, final action seems to have caught most by surprise.

The stated penalty for exporting Australian shells is $100,000 (Australian) or five years' jail, with the penalty doubled if the offense is committed by a corporate body.

dr

SEEN LATER ...

On August 2nd two more alligators were found at liberty on Long Is-Island. They were sunning themselves on rocks in Massapequa Park. U.S. Fish and Wildlife Service was notified, and in the dark and early hours of August 4th wildlife expert Sam LiBrandi captured them with the aid of spotlight and noose. They measured 2' and 4', a bit smaller than the one taken July 19th. The location? Massapequa Lake off Ocean Avenue (see NOTES 287.9, 292.15).

The capture was in the nature of a rescue, as the alligators could not have survived this latitude in the wild. They were taken to the Staten Island Zoo, which is famous for its collection of and expertise on reptiles.

Dorothy Raeihle

FLORIDA SHELL SHOWS

January	18 - 29	Southwest Florida Shell Show	Fort Myers
	18 - 20	Central Florida Shell Show	Orlando
	24 - 27	Greater Miami Shell Show	Miami
	25 - 27	Sarasota Shell Show	Sarasota
February	1 - 3	Broward Shell Show	Pompano Beach
	14 - 17	Palm Beach Shell Show	West Palm Beach
	15 - 17	Naples Shell Show	Naples
	22 - 24	St. Petersburg Shell Show	St. Petersburg
March	7 - 10	Sanibel Shell Show	Sanibel Island
	13 - 14	Marco Island Shell Show	Marco Island
	29 - 31	Astronaut Trail Shell Show	Melbourne

Donald Dan in Hawaiian
Shell News, October 1984

SEASHELL BOOKLET OF U.S. POSTAGE STAMPS

The designs for the 1985 booklet stamps depicting five seashells were revealed September 21 in Boston, Massachusetts, the Postal Service announced.

Postmaster General William F. Bolger unveiled the designs at the Museum of Comparative Zoology, Harvard University, which has a large mollusk collection.

The seashells booklet panel will consist of 10 stamps — two stamps with each of the five designs. The stamps were designed by Bureau of Engraving and Printing artist Peter Cocci. They will be printed in multicolor at the Bureau.

The stamps were unveiled without denominations because of uncertainty about postage rates next year.

"Seashells hold a special mystery, a unique secret of the sea from which they come," Postmaster General Bolger said in unveiling the seashell stamps. "For centuries, men and women, young and old, have been collecting seashells because of their ageless beauty," he added. He also noted that the United States, with its thousands of miles of shoreline, is a prime shell collecting country.

(From: Irradians 11(2):6, Oct. 1984, publication of Long Island Shell Club. Original source was not given.)

These are the first U.S. postage stamps ever designed portraying shells. All are native to the North American continent, and each is captioned with its common name. They are:

Frilled Dogwinkle	Nucella lamellosa (Gmelin, 1791). Bering Straits to Santa Cruz, California.
Reticulated Helmet	Cypraecassis testiculus (Linne, 1758). North Carolina to Brazil.
New England Neptune	Neptunea decemcostata (Say, 1826). Grand Banks to off North Carolina.
Calico Scallop	Argopecten gibbus (Linne, 1758). Maryland to Florida, Texas to Brazil.
Lightning Whelk	Busycon contrarium (Conrad, 1840). Off New Jersey to Florida and the Gulf states.

Dr. Ruth Turner was a speaker at the unveiling ceremonies, and there was an exhibit of the shells in the museum's Romer Hall. We will begin looking for these special stamps on and after January 1, 1985.

dr

EXCHANGE WANTED

Dear fellow shell collectors,

I am a member of the Border and Tronskei branch of the South African Conchological Society and am writing in connection with the possibility of trading sea shells with the members of your club. I can offer South African shells in exchange for what you may have. Could you please ask if there would be any folk interested in exchanging shells with me and I could send them a detailed list of what I have available.

Thanking you very sincerely,

Gerald Kirchoff
2 Watsonia Crescent
Gonubie - 5256
Republic of South Africa

HIGHLIGHTS OF THE SEPTEMBER MEETING

President Mary Anne Bastek asked for volunteers for three committees: Shell NOTES (collating and inserting), Program, and Welcome & Membership. She also asked for a volunteer to serve as Corresponding Secretary. Edna Christensen responded.

Mary Anne announced the Long Island Shell Club's Shell Show, September 22 - 23, and distributed flyers. She also displayed the periodicals of several other clubs, and said she will try to arrange for producing and distributing flyers announcing each month's program.

Walter Sage displayed Tucker Abbott's new book on collectible Florida shells, noting that an order of twenty or more copies would qualify for a 25% discount. He thanked the Club for its contributions to the William E. Old fund, and reported that the fund has permitted the purchase of a specimen of Cypraea porteri* for the Museum. He also asked for volunteers to aid in the work of the Museum's mollusk department.

Walter reported that long-time member Bella Kudatsky will soon be moving to Boston, and will sell her shell collection and books.

Anyone interested should get in touch with Bella, whose address is 91-07 68th Avenue, Forest Hills, New York 11375.

The speaker was Russell Jensen, of the Delaware Museum of Natural History. His subject was "Shells of Bermuda." Russ noted that the Bermuda fishery law now forbids collecting a number of genera, and that the fine for taking protected shells is $500 per specimen. Even though knowledgeable collectors have worked the island's waters for many years, new species are still being found. He feels that climatic change may be part of the reason why they appear where they had not been found before. On a recent trip to Bermuda, representing the Delaware Museum, he did some collecting from a boat owned by resident Jack Lightbourne. Some of their catch was made with a dredge, and some searched out of trenches that were blown into the sand in shallow waters using the blast of the boat's propeller, directed downward by a specially designed shield. Russ showed photos of this and other equipment, the boat, and many shells, some of which had been collected on others of his many trips to Bermuda.

(* See: Cypraea porteri Cate, 1966, by Robert H. Janowsky, in NOTES No. 267, pages 5-7, December 1980. — Ed.)

Milton Werner, Recording Sec'y

HIGHLIGHTS OF THE OCTOBER MEETING

President Mary Anne Bastek reported that a production committee for our Shell NOTES is being formed, that the editor needs contributions of articles, and that she will try to have all meeting programs announced in advance. She hopes to organize a trip to the Delaware Museum in the spring, and perhaps another to the Long Island oyster farm. She asked for a volunteer to display a Shell of the Month at the November meeting. Last, she noted that we should start planning for the April social meeting, first by finding a chairman. Mary Anne also announced the death of long-time member Herman Seid, of Essex, Connecticut and Sanibel, Florida.

Carol Lindsay, corresponding secretary, reported receiving a letter from member Vincent Cusumano, who suffered an industrial accident in 1962 and, as a result, has not been able to attend meetings. He wrote because he wants to keep in touch with the Club and its members.

Walter Sage reported that a few members had attended the Long Island Shell Club's show, and that it was a good one. He also mentioned that the Philadelphia Shell Club's Shell Show was to be held October 20 - 21. He announced the news, received from Harvard, of the forthcoming special issue of U.S. postage stamps depicting shells. He also reported that Tom Rice's publication, "Of Sea and Shore," will no longer be published, and that subscriptions will be fulfilled with Steve Long's "Shells and Sea Life."

Reporting for the American Museum's Mollusk Department, Walter announced that the William S. Teator collection of land and freshwater mollusks from the vicinity of Red Hook, New York, has been donated to the Museum by the two persons who had acquired parts of it on the death of the collector in 1930.

Unscheduled activities included feeding and sheltering a public enemy - an Achatina fulica which the department held in custody until it could be officially confiscated by federal authorities. It had reached this area via a wholesaler. On another occasion Walter had the honor of delivering a five-foot squid to the Smithsonian (see the report following these "Highlights").

Walter also mentioned a visitor who had come into the Museum to learn what the department could tell her about some shells she had acquired. They had been pierced for stringing, showed fire damage, and had been found at the site of the ill-fated Sodom and Gomorrah.

The shells on display were from the Museum collection, and represented rare acquisitions, the Indo-Pacific province, and type specimens.

Walter then showed a number of shell slides made by Ray Summers, describing the shells, many of which were living cowries.

Milton Werner, Recording Sec'y

TANINGIA DANAE (Joubin, 1931)

The saga of the five-foot squid begins last March 17th on an Italian fishing boat working off Nova Scotia. The large cephalopod was taken in the net while trawling to 120 meters for squid (*Loligo pealeii* Lesueur, 1821 = calamari). Fortunately for science, David Gallagher of the National Marine Fisheries Service Observer Program was aboard, and with the cooperation of Captain Marco Marcielliano the unidentified squid was collected and brought into a port in Maine. It was preserved by freezing.

From Maine, Mr. Gallagher got in touch with the American Museum's Mollusk Department: "Do you want it?" Walter Sage relayed the question to cephalopod specialist Dr. Clyde Roper at the Smithsonian, who immediately answered "Yes." So on March 26th Walter found himself at Pier 5 in Brooklyn to meet the frozen carcass and soon they were on their way to Washington where the specimen was very much appreciated. Dr. Roper pronounced it a rare find; the following remarks were excerpt from his informal reports:

> The magnificent squid rescued from the huge catch of *Loligo* turns out to be *Taningia danae*, a relatively uncommonly captured midwater (maybe epibenthic?) squid. Most adults on record are from the stomachs of sperm whales, who seem to relish *Taningia*. The specimen is a mature adult male and is by far the largest specimen in the United States. The species apparently has a worldwide distribution and can reach a body length of nearly six feet. As this specimen was taken in "shallow" water, it must have been a stray visitor.

D. Raeihle, Editor

NEW REGISTER OF AMERICAN MALACOLOGISTS

The 1985 edition of the Register of American Malacologists is now being assembled and typed. Not since the 1975 Supplement has this valuable reference been up-dated. It will give the biographies, interests and addresses of over 1500 amateur and professional malacologists living in the Americas. A new feature gives the names and addresses of recent members of the three largest malacological societies in the United States — the Conchologists of America, the

American Malacological Union and the Western Society of Malacologists.

A free listing or the inclusion of your conchological biography can be assured by writing for an application from the editor, Dr. R. Tucker Abbott, American Malacologists, Inc., P.O. Box 2255, Melbourne, Florida 32902.

News release.

REVIEW:

COLLECTIBLE SHELLS OF SOUTHEASTERN U.S., BAHAMAS & CARIBBEAN
or
COLLECTIBLE FLORIDA SHELLS

by R. Tucker Abbott. American Malacologists, Inc., 1984. 64 pp., 104 color plates. 6" x 9", paperback $5.00; waterproof $8.95.

Here is an excellent field guide which is being issued under two titles: (1) "Collectible Shells of Southeastern U.S., Bahamas & Caribbean" for general distribution, and (2) "Collectible Florida Shells" for marketing in Florida for the tourist trade. For use in the field there is a special waterproof/tearproof edition of each title. Text and photographs are identical in all issues.

This little book is tremendous: The color photographs are excellent and, of the 300 species pictured, most are of shells you are likely to find, several are noted as uncommon, a few are rare. The captions give common name, size, scientific name with author and date, habitat, range, and whether common, uncommon, or rare. For example: "Shark's Eye 2 1/2" (6 cm) Polinices duplicatus (Say, 1822). Eastern U.S. Sandy shallows; common. Sandy 'collar' is its egg mass." Typical shelling areas are pictured — shores, shallows, and fossil digs. Liguus and the more interesting of the non-marine species are included. The two pages of "Life Cast Ashore" (urchins, sea beans, etc.) answer more of the questions always asked by newcomers to the beach. And there are notes on cleaning and storing.

The care with which this guide has been assembled is evident. Dr. Abbott gives of his years of experience to present a comprehensive, practical guide especially designed for the interested beginner but also for the beachcomber and general collector. Highly recommended.

Shell clubs ordering 20 or more copies (mixed editions if desired) are offered a 25% discount. Add $3.00 postage. Order from American Malacologists, Inc., P.O. Box 2255, Melbourne, Florida 32902.

Dorothy Raeihle

DIE-OFF OF LONG-SPINED URCHINS

Visitors to the Florida Keys may notice a diminished number of the menacing black, long-spined sea urchins, Diadema antillarum. Scientists at Smithsonian's Tropical Research Station in Panama report an epidemic of die-offs, all over its range, and that the species was "nearly wiped out." The cause was traced to an as yet unidentified current-borne organism which, surprisingly, did not affect six other species of urchins. Results of the study are reported in Science magazine of October 19th, 1984.

Bayard Webster in
NY Times, October 12, 1984

RECENT RECORDS OF ANODONTA CATARACTA Say, 1817, IN CENTRAL PARK LAKE

Walter Sage, American Museum of Natural History

On September 14, 1983, the writer collected a dead, paired specimen of *Anodonta cataracta* Say, 1817, measuring 65 mm in length, floating on the surface of Central Park Lake, Manhattan, New York City. This find stimulated a search of the literature, and it was discovered that the earliest record of this species from Manhattan is that of several specimens found in the summer of 1951, when the water level of this same lake sank very low due to dry weather (Jacobson, 1952, p. 5). Jacobson adds that specimens of this species with the same peculiar beak structure were found in Lake Ronkonkoma, in eastern Long Island. Subsequent records for this species in the vicinity of New York City include Central Park Lake; Lake Ronkonkoma; Prospect Park Lake, Brooklyn; smaller ponds and lakes of Forest Park, Queens (Jacobson, 1956, p. 4); Watchung Reservoir, Union County, New Jersey (Ahders, 1958, p. 4); Saddle River, Paramus, New Jersey (Germer, 1963, p. 4); Baisley Pond and Kissena Park Lake, Queens; Prospect Park Lake, Brooklyn; Alley Pond, Queens (fragments); Central Park Lake at 72nd Street, Manhattan (single valves); Lake Ronkonkoma, Long Island (common); and Lake Mohegan near Peekskill (common) (Jacobson and Emerson, 1961, p. 38; Jacobson and Emerson, 1971, p. 38).

The specimen collected in 1983 was displayed at a meeting of the New York Shell Club in early Fall, 1983, and one member rose to comment that in the late Fall, when the water level of Central Park Lake is at its lowest, specimens of this *Anodonta* can be easily collected. This information was communicated to NYSC member Bruce Einsohn, who has a special interest in the mollusks of Manhattan. Bruce visited Central Park Lake on November 26, 1983 and found the lake at low water level. He collected several specimens of *Anodonta cataracta*, the largest measuring 126 mm in length. The specimens collected in September and November, 1983 are in the research collections of the American Museum of Natural History. We have thus established that *Anodonta cataracta* Say, 1817, is still living in Central Park Lake, Manhattan, more than thirty years after it was first collected at this locality in 1951.

Since compiling the above list of records, two more locations for *Anodonta cataracta* have been brought to the writer's attention: (1) Sherwood Lake in Islip, Suffolk County (south shore of Long Island) where a specimen measuring almost 5" was dredged from a sand bottom in July, 1981 and (2) Roslyn, Nassau County (North shore of Long Island) where specimens were taken from the mud and gravel bottom of a local lake known as "Black Ink." A specimen measuring 134 mm, among others, was taken from the dried up bottom of the lake by Jack Odenwald, Jr. in August of 1981. He reports that a living colony was still present on his last visit to the lake in the summer of 1983.

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OLD RECORDS OF ANODONTA CATARACTA Say, 1817

We were attempting to search out earlier location records of *Anodonta cataracta* Say, 1817, when we found some interesting items about this attractive freshwater bivalve, commonly called the Fragile Freshwater Mussel.

Thomas Say's description was published in Nichol's Encyclopedia, volume 4, as *Anodonta cataracta*, but apparently there was disagreement among conchologists, for we find that Gould, in his Report on the Invertebrata of Massachusetts, 1841, has it *Anodonta fluvialis* (p. 17, fig. 80). Two years later DeKay, in his Zoology of New York, Part V - Mollusca, 1843 has it as *Anodon fluvialis* (p. 203, plate XVIII, fig. 234) with *Anodonta cataracta* and *A. fluvialis* as synonyms. DeKay states: "This species is common in almost all our mill-ponds and sluggish streams."

The name *Anodon fluvialis* persists through the publishing of Gould and Binney's Invertebrata of Massachusetts, 1870, where it is described and pictured, pp. 178-180. The range given in the publication refers to areas within Massachusetts and reads: "Inhabits ponds in the western and central parts of this State, and is seldom found in any other part. Professor Adams, however, assures me he has found it at Falmouth, and I have collected a few specimens from clay-pits near Winter Hill, Charlestown."

Just when the name *Anodonta cataracta* was restored we did not discover; at any rate it was eventually decided that Thomas Say was right in the first place.

Dorothy Raeihle

OF SEA AND SHORE/SHELLS & SEA LIFE

Of Sea and Shore, a popular magazine on shelling, has ceased publication after thirteen fruitful years of serving amateur conchologists. Tom Rice, the editor, will continue his Sheller's Directory of Clubs, Books, Periodicals and Dealers and his Catalog of Dealers' Prices for Marine Shells. He will also expand his activities at the "Of Sea and Shore Museum" in Port Gamble, Washington. Tom will join the editorial staff of the new popular magazine, "Shells and Sea Life" (formerly "Opisthobranch") which is headed by Steve Long and Sally Bennett at 505 East Pasadena, Phoenix, Arizona 85012.

If you are a subscriber to Of Sea and Shore, your subscription will be fulfilled with issues of Shells & Sea Life. Tom's last number was vol. 13, no. 2. We all thank him for giving the general public such an interesting magazine on shelling, and wish Shells & Sea

Life a prosperous and long future.

Tom writes that any questions concerning missing issues up to and including Volume 13, Number 2 of Of Sea and Shore Magazine should be directed to him at P.O. Box 33, Port Gamble, Washington 98364.

R. Tucker Abbott in
The Nautilus 98(4):164

In addition to changing the name of their publication, Opisthobranch, to Shells & Sea Life, Sally Bennett and Steven Long (505 East Pasadena, Phoenix, Arizona 95012) have purchased the business and entire inventory of Seashell Treasures Books from Mrs. Jeanne Pisor of San Diego. They intend to carry "more scientific reprints, journals and many used books on Malacology and related subjects."

Hawaiian Shell News, October 1984.

REVIEW:

MARINE MOLLUSKS OF CAPE COD

by Donald J. Zinn. 1984. Natural History Series no. 2, The Cape Cod Museum of Natural History, Brewster, Massachusetts 02631. 78 pages, illustrated. Price $6.95.

This compact, paperbound booklet will readily serve as an informal, introductory guide to the marine mollusks of Cape Cod likely to be found by the casual beachcomber. An introduction gives basic facts about mollusks in these four sections: history and art, scientific nomenclature, where to find mollusks, and how to make a shell collection. A detailed glossary introduces the reader to terms used for mollusks. A systematic list outlines molluscan classification to the genus level for the species included in this book.

Five classes of mollusks are treated in the descriptive list — 1 chiton, 1 scaphopod, 30 gastropods, 35 bivalves, and 2 cephalopods. Several additional species are mentioned but not figured. The discussion of each species lists several sentences of description, supplying habitat data, size and detail of the shell or animal, and often how to distinguish a species from related forms. The well-executed line drawings should enable the novice collector to identify his finds.

An unusual and interesting feature is the inclusion of 28 recipes for locally collected mollusks. These recipes often are for species not usually considered for consumption, such as chitons, limpets, and moon snails.

A page of references and indices for scientific and common names complete this volume. Novices and more advanced collectors alike will find this guide a useful and informative addition to their libraries.

Walter E. Sage

MOLLUSCOCIDES DANGEROUS TO PETS

The American Animal Hospital Association reports that many dogs like the taste of snail and slug bait. If you or your neighbors use these products, be sure to keep your dog out of the garden.

New York Daily News, August 12, 1984

MOLLUSKS FROM "DOWN EAST"

Between three and four million visitors pass through Acadia National Park each year. Of these, only a small percentage stray very far from the beaten path, to visit the many small fishing villages of Hancock and Washington Counties, or to investigate the inhabitants of mud flats and tide pools. Shell collectors are few and far between.

Maine cannot compete with tropical beaches in numbers of molluscan species, yet nearly fifty species can be collected, in one way or another, without benefit of dredging facilities. About half of these can be collected directly, by wading in the lower tide pools, or in the gravel and mud of coves. As tides vary from eight to ten feet, or more, most collecting is possible only at low tide.

The remaining species may at various times be obtained from fishermen or fishing gear, lobster traps, the decks and gear of bottom trawlers and scallop draggers. Unfortunately for collectors, most mollusks (other than those fished for) are dumped or washed overboard with all other "trash."

An obliging lobsterman may be willing to set aside a few "wrinkles" (*Buccinum*, *Neptunea* or *Colus*) and draggers returning to port are not invariably barren of other mollusks. A quart or two of the "grunge" on the gunwales of a scallop dragger may be quite interesting when rinsed, dried, and carefully examined.

The following list of species is subjective, based on personal experience. It applies principally to the northern Maine coast, roughly from the Penobscot River to Quoddy Head. Many more species have been recorded from this area, but the usual conditions of granite headlands and mud-and-gravel inlets are unfavorable to some intertidal and shallow water species which occur both north and south of the area covered. Off-shore dredging would undoubtedly produce others, and not all of these listed could be expected in a single vacation visit.

Species collectable by beach combing and wading include:

Notoacmea testudinalis (Müller): Common, from low intertidal down, on smooth rock, stones, or dead shells.

Margarites helicinus (Phipps): Locally moderately common, from lowest intertidal down, on Laminarian algae, eelgrass, and algae-covered stones.

Lacuna vincta (Montagu): Locally common, subtidal, on Laminarian algae.

Littorina littorea (Linné): Abundant everywhere, from about mid-tidal level down.

Littorina obtusata (Linné): Abundant wherever Fucoid algae are present, on algal fronds and underlying rock.

Littorina saxatilis (Olivi): Abundant almost everywhere, from above mean high tide to about mid-tidal level. Very variable in size and coloring.

Cingula aculeus Gould: Uncommon to rare, near lowest intertidal, under stones and dead shells. (Apparent rarity may be due to size — 2 to 3 mm.)

Lunatia heros (Say): Uncommon inshore, subtidal on mud. Larger off-shore specimens occasionally stray into lobster traps.

Lunatia triseriata (Say): Locally moderately common, subtidal on mud. Banded color patterns usually absent in adults.

Nucella lapillus (Linné): Abundant, from lower intertidal down, on rock and stones. Colorful, banded and "frilly" specimens are not rare.

Buccinum undatum Linné: Juveniles and subadult specimens locally uncommon in tide pools. Adults usually found only offshore.

Mytilus edulis Linné: Abundant from mid-tidal levels down; young specimens form solid carpets on many lower intertidal ledges. Light colored and rayed specimens not uncommon.

Modiolus modiolus (Linné): Moderately common, subtidal in tide pools, associated with Irish Moss and holdfasts of Laminarian algae, and often encrusted with pink calcareous algae.

Placopecten magellanicus (Gmelin): Rare inshore. Juveniles occasionally cast ashore, or in eelgrass beds.

Anomia squamula Linné: Uncommon, subtidal on rock ledges, stones, or dead shells.

Macoma balthica Linné: Locally common, in muddy coves, principally as dead paired valves.

Mya arenaria Linné: Abundant, intertidal, in mud and gravel flats. Large specimens uncommon due to overcollecting for food.

Mya truncata Linné: Rare, as above. More common to the north, from extreme northern Maine to Labrador.

Hiatella arctica (Linné): Moderately common, subtidal, embedded in algal holdfasts or byssus of *Modiolus*. (This species does not bore into stone.)

Cochlodesma leanum (Conrad): Uncommon as dead valves or pairs at tide marks. No living specimens collected.

Stenosemus (=*Ischnochiton*) *albus* (Linné): Uncommon to rare, intertidal under *smooth* stones and boulders.

Tonicella rubra (Linné): Uncommon, from low intertidal down, on rocks or dead shells. Most often associated with pinkish calcareous algae in lower tide pools.

A few other species occasionally wash onto beaches or into tide pools, but are usually badly eroded or fragmented.

Three species of Buccinidae get into lobster traps, attracted by the bait of dead, salted herring:

Buccinum undatum Linné: Common, varying in condition, but frequently with eroded spires and stained by algae.

Neptunea lyrata decemcostata (Say): Moderately common, but perfect specimens rare, as spire is often worn and surface somewhat defaced.

Colus stimpsoni (Mörch): Uncommon except in traps set in 20-30 fathoms. Seldom perfect, often heavily eroded, and lip is fragile.

The remaining species may occasionally be collected from the decks and gear of bottom draggers. Only a few species are commonly recovered, the others being found sparingly and inconsistently. Three (or four) bivalves seem most frequently found. They are:

Cyclocardia borealis (Conrad): Common, on decks or snagged in nets.

[Note: *Cyclocardia novangliae* (Morse) *may* be a valid species. Some smaller specimens appear longer for their height, but this is uncertain and may simply be a function of age.]

Astarte crenata subequilatera Sowerby: Moderately common, as above.

Astarte undata Gould: Common, as above.

The rest of the remaining species are merely listed. All have been found, sparingly, among masses of mud, pebbles, bryozoans and other trash adhering to gear or the boats.

Puncturella noachina (Linné)
Margarites costalis (Gould)
Calliostoma occidentale (Mighels & Adams)
Trichotropis borealis (Broderip & Sowerby)
Crucibulum striatum Say
Aporrhais occidentalis Beck (dead only)
Mitrella rosacea (Gould)
Propebela cancellata (Mighels & Adams)
Nucula proxima Say
Crenella glandula (Totten)
Musculus discors (Linné)
Chlamys islandica (Müller)
Placopecten magellanicus (Gmelin)
Cerastoderma pinnulatum (Conrad)
Spisula solidissima (Dillwyn)
Arctica islandica (Linné)
Pitar morrhuana Linsley
Teredo sp. aff. *T. navalis* Linné (in waterlogged wood)
Tonicella marmorea (Fabricius) (on pebbles or dead shells)
Dentalium entale stimpsoni Henderson

A very few other species have been noted in a worn or broken condition, such as a small *Boreotrophon* sp., probably *B. clathratus* (Linné) and a probable *Colus pygmaea* Gould. Notably absent from the list are *Aporrhais occidentalis* Beck and *Epitonium greenlandicum* Perry. One very dead *Aporrhais* was once found in a lobster trap, but no *Epitonium* have turned up, although probably common in deeper water. (Few inshore draggers fish deeper than 25 to 35 fathoms.)

While not mollusks, two species of Brachiopods are also found in scallop dredges. These are:

Terebratulina caputserpentis (Linné)
Terebratulina septentrionalis Couthouy

While not very colorful, these cold-water species are interesting and not often available through dealers.

Earl H. Reed

Earl H. Reed
Assistant Director (Retired
Springfield Science Museum
Springfield, Massachusetts 01103

ON JOURNALS AND MEETINGS

> A regular journal carries from one research worker to another the various...observations which are of common interest.... A typical scientific paper has never pretended to be more than another little piece in a larger jigsaw — not significant in itself but as an element in a grander scheme. This technique, of soliciting many modest contributions to the store of human knowledge, has been the secret of Western science since the seventeenth century, for it achieves a corporate, collective power that is far greater than one individual can exert.

Excerpt from the essay by J. M. Ziman,
"Information, Communication, Knowledge,"
Nature Magazine, 224:318-324, 1969.

AMU — 1984

In the Boston Malacological Club Newsletter of October, 1984, Ed Nieburger reports on the American Malacological Union's 50th annual meeting, held July 22 - 27 in Norfolk, Virginia with 180 registered delegates in attendance. He writes:

> Convention attendees traditionally benefit in three ways: (1) technical meetings presented by the malacologists provide a learning experience for all, professionals and amateurs alike. (2) the social setting provided by the week-long meeting gives all members the opportunity to explore one another's interests and activities and exchange ideas and information, and (3) the site of the meeting usually provides the chance for a field trip or a choice of field trips to collect and/or study mollusks or to experience the shopping and pleasures of the particular region of the country. The Norfolk meeting had it all.

Ed goes on to report that, in addition to the two technical symposia, and sometimes running concurrently, were presentations on a variety of topics, some technical, many popular, and all instructive. Of other activities, the first was the President's Reception, with buffet and opening bar on opening night; field trips on Wednesday (previews the previous evening); an auction on Thursday evening and, as a grand finish to the week, on Friday evening the banquet, followed by a slide show on Scallops by Dr. Thomas Waller of the Smithsonian. An innovation this year was that an area was set aside for dealers to offer shells and books throughout the week.

The report concludes by extending congratulations to Dr. Robert Robertson, president of AMU 1983-84, and to Local Chairman Wylda Stephens for organizing a wonderful meeting.

* * * *

The 1985 meeting of the American Malacological Union will be held July 29 - August 4 on the campus of the University of Rhode Island at Kingston, under the leadership of Melbourne R. Carriker as AMU president for the 1984-85 term. Dormitory rooms will be available; there are also nearby motels.

For 1986 a joint meeting of WSM and AMU is planned, to be held in Monterey, California, under the leadership of James Nybakken.

D. Raeihle, Editor

WSM CONVENTION, 1984

Gene Everson

The Western Society of Malacologists held their 1984 convention August 16 - 19 at Crown College, on the University of California campus, Santa Cruz. This is a sprawling, 2,000 acre campus located in a redwood forest overlooking the ocean, about 80 miles south of San Francisco.

I attended mainly to hear Dr. Donald Shasky present two papers concerning findings of our diving-shelling trip to Cocos Island last March. One talk was entitled "Update on mollusks with Indo-Pacific faunal affinities in the tropical eastern Pacific - III." (This is the third paper he has given concerning a continuing study.) The other was "Cocos Island, Costa Rica: An Indo-Panamic Bridge."

There were many opisthobranch (nudibranch) papers presented at this meeting, and their interest here is similar to the cephalopod influence at AMU meetings. A book and shell auction was held on Friday evening, and the banquet on Saturday, with a program by Dr. Steven K. Webster, "The Monterey Bay Aquarium: A Window into Monterey Bay." A large modern marine aquarium will be opening around October, 1984 at the Monterey Bay and we were treated to slides of many of the animals and behind the scene techniques and construction methods necessary to house them. A joint WSM - AMU convention will be held in Monterey in 1986 and I urge as many of you as possible to attend and also tour this new attraction. Another highlight of the banquet was a large Chambered Nautilus carved out of ice with a lit candle behind it to illuminate and reflect through the ice crystals.

On Sunday there was a field trip to Elkhorn Slough Estuarine Sanctuary and afterwards an open house and tour of Moss Landing Marine Laboratory.

Reprinted from The Shell-O-Gram 25(6):7
Publication of the Jacksonville Shell Club

COA CONVENTION, 1984

The St. Petersburg Shell Club sponsored a very successful 12th Anniversary meeting of the Conchologists of America from June 27th to 30th at the Don CeSar Beach Resort on St. Petersburg Beach. Over 300 shell enthusiasts were in attendance and the days were filled with slide presentations, social activities, two field trips, and a dealer's bourse with scores of merchants offering a variety of wares from specimen shells to fabrics. All this while shelling was right outside the front door. For those who could extend their stay, a supplemental field trip to the Sarasota fossil pits introduced many members to beautiful Pliocene specimens which were there in abundance.

Next year's convention is planned for Philadelphia — date and meeting place to be announced.

D. Raeihle, Editor

Editor's note: Notice that in 1985 two of the three conventions will be held in the northeast, within reasonable distances of the New York area. We hope for substantial participation by our members and that we may look forward to their reports. (DR)

EURYPTERUS REMIPES, OFFICIAL FOSSIL OF NEW YORK STATE

The designation of the eurypterid, or sea scorpion, as the state fossil of New York was made official June 27, 1984. It is reported in New York State DEC publications: Environment 15/16:6, August, 1984 and The Conservationist _39_(3):50, November-December, 1984. Dr. Donald W. Fisher, who was New York's state paleontologist for many years, and a chief advocate of the cause, authors the article in The Conservationist; his report is accompanied by Wayne Trimm's photograph of the eurypterid - "in situ." Dr. Fisher writes (in part):

> Eurypterids are extinct aquatic arthropods, "brother" to the living horseshoe crab (_Limulus_), "cousins" to scorpions and spiders, and more distantly related to the lobsters, king crabs and extinct trilobites. Their scorpion-like exoskeleton has a relatively broad head surmounted by large compound eyes, 12 moveable body segments and a stinger-like or spatulate tail. Six pairs of appendages emanate from the underside of the head.... Mature eurypterids generally range from 10 to 20 centimeters long although some reached a length of 180 centimeters, making them the largest arthropod known.
>
> Eurypterids are exceedingly rare worldwide. In the United States eurypterids are reported from only a few states: Wisconsin, Illinois, Indiana, Ohio and Pennsylvania as rare fragments. However, in New York they are locally abundant in the Bertie Dolostone (limestone with a high magnesium content) which extends from Buffalo in Erie County through Genesee, Monroe, Wayne, Ontario, Seneca, Cayuga, Onondaga, Madison, Oneida and Herkimer Counties (roughly along the route of the New York State Thruway. -Ed.).
>
> The Bertie and other eurypterid-bearing Late Silurian dolostones and shales were formed 415 to 400 million years ago in a sea about eight times larger than New York State. This sea was positioned in the tropics, within 15 degrees south of the equator, according to paleomagnetic studies. The known geologic span of eurypterids is Early Ordovician (475 million years ago) to Medial Permian age (260 million years ago); the fossil record shows that the greatest abundance and diversity was during the Late Silurian and Devonian ages.
>
> Among the finest eurypterid collections in the world are those in the Museum of Science in Buffalo, the New York State Museum in Albany and the American Museum of Natural History in New York City.

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dr

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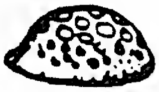

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The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

March 1985

Dear Members:

HI!

Before you know it that wonderful time of the year will be upon us. SPRING! And we know that means only one thing to the New York Shell Club, our annual Shell Auction!!!

This year, the auction will again be held at Dorothy Jensen's dance studio in Astoria, Queens on April 14th at 1 pm. We will send out a special reminder as the date grows near, but circle April 14th on your calendar. Carol Lindsay is chairing this event and could use your help. Please give her a call and help to make this year's shell auction as successful as those in the past.

Our programs for the next couple of months promise to be as interesting as the last several have been. Dr. Landman's program on the Nautilus last month was exceptional. In May, we look forward to hearing Naomi Stern, a local diver, talk to us on her diving and shelling experiences in the Red Sea. So, if you haven't been to a meeting lately try one of the upcoming ones.

One last note before you dig into the rest of the newletter. We are still planning a trip to the Delaware Museum. The date has not been set yet because Russ Jensen is in Mexico. I am hoping for a Saturday in May. Depending on the number of interested members we will rent a mini/maxi bus or car pool. It should be a fun day; you can sign up at the shell auction or call me in April.

Hope to see you soon,

MaryAnne Bastek

Enclosures
NYSC Notes 294

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, except in April, in

ROOM 419, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETINGS: SUNDAY, MARCH 10, 1985 at 2:00 p.m.

SHELLING THE GREAT BARRIER REEF

Australian slide show

SUNDAY, APRIL 14, 1985 ANNUAL SOCIAL AND AUCTION !

Broadway Dance Studio,31-08 Broadway, Astoria, N.Y.

(You will receive further information in a few weeks.)

Doors will open at 1:00 P.M. so that donations and supplies may be brought in and set up.

Action will begin at 2:00 P.M.

Donation at the door: $2.00 per person,
members and their guests

AUCTION * BARGAIN TABLE * RAFFLE * DOOR PRIZE(S)
WINE * CHEESE * SNACKS * PUNCH * COFFEE * CAKE

SUNDAY, MAY 12, 1985

SHELL COLLECTING IN THE RED SEA

by Naomi Stern, a shell collector
who evolved into a scuba diver

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REQUEST FOR EXCHANGE

(Dr. Tsuriel's letter to the New York Shell Club is dated November 20th, 1984. It reached us after our last issue had been mailed.)

Dear Mrs. Raeihle:

I am very interested to exchange land snails of Israel with any of the members of your society for land snails of your area or of the rest of the States. I have over 600 land snails in my collection and also have some marine shells for exchange, but I am only interested in receiving land snails with full data. If any of your members are interested in an exchange I shall be very happy to hear from them. I usually send 4-6 of each species and would appreciate a similar number in return.

I am one of the three founders of the Israel Malacological Society and am also the Hon. Treasurer of the Society. By the way, your Society receives our publications ARGAMON and Levantina.

Hoping to hear from you as soon as possible,

Yours very sincerely,

Philip S. Tsuriel

Dr. P. S. Tsuriel
35 Weizman Street
22-404, Nahariya
Israel

GEORGIA SHELL SHOW

The Georgia Shell Club, Inc. will present their seventh annual shell show Friday, April 12 - Sunday, April 14 at 1000 Northlake Mall, Atlanta, Georgia 30345 (Northlake Mall: I-285 at LaVista Road.) Many new and interesting exhibits will be on display. Admission free, everyone welcome.

For more information, contact Louise or Doug Compton, 4236 Lower Roswell Road, Marietta, GA 30062 - or - Rene or Carl Beeler, 1868 Gainsborough Drive, Chamblee, GA 30341.

HIGHLIGHTS OF THE NOVEMBER MEETING

In the absence of the president, Corresponding Secretary Carol Lindsay conducted the meeting. She noted that it was not too early to appoint a chairman for the April social meeting, and asked for a volunteer. There was none. Theta Lourbacos, who has been doing volunteer work in the mollusk department, said that the Museum has some superfluous shells that would be good for the auction, if a committee can be formed to sort, identify and label them. She added that the department needs more volunteer help to type labels, place specimens in trays, open packages of acquired shells, etc.

The day's Shell-of-the-Month was presented by Milton Werner. It was a 7 1/4 inch *Fasciolaria tulipa* that he had collected live in shallow water off Pacet Key, Florida, when he couldn't see the bottom, and simply reached down to find what his hand might encounter.

Joanne Jubert displayed a fragment of an urn that she had found while SCUBA diving in Sardinia. The depth was 120 feet. She is trying to learn more about its history.

Carol noted that the program material for the day was a slide show made by Bert Draper, research associate at the Los Angeles City Museum. It was expected that he had included a script, but when the mailing package was opened at the meeting, only a tape was found as audio material. A check with the Museum had determined that it had no tape player. Here Joanne Jubert said that she had with her a Walkman player, so it was decided to show the slides and have Joanne relay whatever information she could get from the tape. As it turned out, it was difficult to pick out factual information from the rambling description, so she was able to add little.

Even without narration, the presentation, "Tiny Treasures from Spondylus," was interesting. Mr. Draper had collected five hundred Spondylus princeps in the Gulf of California, near the west shore at Santa Rosalia. His pictures showed some Spondylus before and after cleaning, along with the many species of miniature mollusks that had lived in the little jungle among the Spondylus' spines. They included Arcidae and Pectens; Caecums, Pyramidellidae, Diodora, Chitons etc. - a great variety of gastropods. The dominant colors were shades of brown, from the lightest to the darkest.

Milton Werner, Recording Sec'y

HIGHLIGHTS OF THE DECEMBER MEETING

President Mary Anne Bastek reported that she intends to read through the by-laws in order to lead a discussion of them at the January meeting, and that the speaker in February will be Neil H. Landman of the American Museum of Natural History. She also has arranged for two speakers in the spring — Naomi Stern, a SCUBA diver, and Dr. and Mrs. Donald Bosch. She noted that Carol Lindsay will serve as chairman for the April social meeting.

The Shell-of-the-Month was presented by Nick Katsaras. It was an Acanthina grandis, from the Galapagos. Nick said that he has never seen it on a price list, and had seldom seen a specimen in as good condition as the one he displayed. He also showed specimens of Beringius iredami, Neptunea lyrata, N. decemcostata, Leucozonia cingulifera (= nassa), Acanthina imbricata, Thais bronni, Fasciolaria branhamae, and the fossil Ecphora quadricostata. All of these and his Shell-of-the-Month have in common a number of prominent revolving color lines or ridges. When asked questions from his audience, Nick, who was wearing spectacles for the first time, often removed them momentarily "to hear better."

Mathilde Weingartner noted that someone in the Long Island Shell Club had suggested that New York designate a State Shell, and added that the American Malacological Union has warned against this, since the ensuing popularity can lead to over-collecting of the chosen Shell.

Walter Sage had on display a color series of Argopecten irradians, collected November 18th at North Haven, Long Island. He also had on hand a copy of the recipe book, "Molluscan Melange," by Capt. Alex Roth of Guam, and a seashell calendar.

Because the program presentation at the November meeting, the slide show "Tiny Treasures from Spondylus," had suffered for the lack of a tape player for the narration, it was repeated, this time with the tape. The narrator, Bert Draper, had collected 500 Spondylus princeps in the Gulf of California, near the west shore at Santa Rosalia, and had identified and photographed the myriad of tiny shells that lived in the growth among the spines. The list ran to 111 genera and 175 species.

Milton Werner, Recording Sec'y

REVIEWS:

NUDIBRANCHS OF AUSTRALASIA

by Richard C. Willan and Neville Coleman, 1984. Australasian Marine Photographic Index, Sydney, Australia. 56 pages, 175 color photographs, illustrations. $26.95.

Nudibranchs have been called "the butterflies of the sea," and they are without doubt among the most fascinating and colorful of mollusks. This book is a fine introduction to these animals and should stimulate interest in studying and photographing in the field these hard-to-collect gastropods.

The authors begin this work by outlining the classification of the molluscan subclass Opisthobranchia, detailing and illustrating the various orders and concentrating on the nudibranchs. Habitats and diets, defense mechanisms, life cycles, and collection and preservation of nudibranchs are discussed. A glossary of terms is provided, as is an index and selected references, and a special feature is a checklist of the species of Australian nudibranchs.

The bulk of the volume is devoted to a systematic presentation of Australasian nudibranchs, accompanied by superb color photographs. A selected series of 167 species is treated, including all common species, and giving a balanced geographic representation for Australian and South Pacific species, and between taxonomic groups. Preference is given to species with established names, although 27 species are identified only to genus level. Several sentences of description cover color pattern, size, range, locality for the illustrated specimen, and comparison of related species.

Everyone interested in nudibranchs will have to own this book, and it will serve as an invaluable reference to these unusual mollusks. The book is a visual delight, although rather highly priced. Students of mollusks wishing to broaden their knowledge will want to enjoy this volume.

Walter Sage

SYSTEMATICS OF THE FAMILY NASSARIIDAE (MOLLUSCA: GASTROPODA)

by Walter O. Cernohorsky, 1984. Bulletin 14, Auckland Institute and Museum, Auckland, New Zealand. 356 pages, 172 text figures, 51 black and white plates. $22.00.

This extensive monograph is the latest in a series of papers by Walter O. Cernohorsky on the marine molluscan family Nassariidae, a group of predominantly small to medium sized gastropods which are characteristic of the intertidal fauna and are concentrated in distribution in the warmer waters of the Indo-Pacific. The introduction covers family characters, the animal, the radula, larval development, classification, and distribution. Cernohorsky recognizes as "tentatively valid" well over 300 living species in this family, geographically distributed as follows: 40 species, Pacific coast of America; 23 species, Western Atlantic-Caribbean; 53 species, Europe-Eastern Atlantic; and 211 species, Indo-Pacific.

The family is divided into three subfamilies: Dorsaninae, Cylleninae, and Nassariinae. Noting the size of the family, Cernohorsky reserves detailed treatment of Dorsaninae for a future monograph, but provides a checklist of fossil and living species of this subfamily, whose genera are *Bullia*, from South Africa and the western Indian Ocean; *Buccinanops*, from the southeastern coast of South America; and *Dorsanum*, from West Africa. Descriptions of the 5 fossil and 14 living species of Cylleninae (genus *Cyllene*) from the tropical Indo-Pacific, Southeast Australia, and West Africa are included. All Indo-Pacific species of Nassariinae (genera *Nassarius* with 12 subgenera), *Hebra*, and *Demoulia* are also described, while checklists of fossil and living Nassariinae from the Pacific coast of America and the Western and Eastern Atlantic are given, as are lists of dubious or excluded species for all subfamilies. Excellent black and white illustrations are provided for each species described.

Discussion for each species includes scientific name, author and date, complete synonymy, several sentences of description, type locality, distribution, repository of type specimens, material examined, and literature records. Two new species are described: *Nassarius (Plicarcularia) maccauslandi*, from the Fiji Islands, and *Nassarius (Zeuxis) whiteheadae*, from Queensland, Australia. A comprehensive bibliography and an index to all taxa mentioned, whether valid or synonyms, completes the volume. This work is a most important contribution, and must be in the library of every serious student of mollusks.

Walter Sage

(Walter Sage advises that the two works reviewed above, if not readily located, may be available from Seashell Treasures Books, 505 Pasadena, Phoenix, Arizona 85012.)

LIFE IN THE CHESAPEAKE BAY

by Alice Jane Lippson and Robert L. Lippson. The Johns Hopkins University Press, Baltimore, Maryland. 220 pp., $12.95 (paper).

Periodically, a book arrives that is the model of how natural history should be written. The Lippsons' work is such a model, beautifully designed and made, well written, profusely illustrated. The authors take on the challenge of describing Chesapeake flora and fauna by splitting out the organisms by habitat — sand beaches; intertidal flats; piers; rocks and jetties; shallow waters; seagrass meadows and weed beds; marshes; oyster bars; and deeper open waters. Each is introduced by a short section describing the habitat, then follow the description and illustrations of the life there. Not only a guide for the Chesapeake Bay area, but also a good guide for marine life between Cape Cod and Cape Hatteras. Highly recommended.

Condensed from a review in Underwater Naturalist *15*(1):30

The American Littoral Society is an active organization with headquarters at Sandy Hook, New Jersey. We reproduce here their 1985 field trip schedule as it contains much of common interest to our members. For a brochure giving outlines of each trip, with costs, write to the Society at the address below.

The March 13th Film Symposium will be held in the auditorium of the American Museum of Natural History, 7:30-9:30 p.m. Subject: "The World of Whales." Open to all. Tickets $7.00 each from the American Littoral Society, Highlands, NJ 07732. (Phone = 201:291-0055.)

1985
Field Trip Schedule
AMERICAN LITTORAL SOCIETY

Jan. 1	Annual New Year's Day Beachwalks
March 13	Film Symposium, New York City
March 23	Oyster Dive I, Chesapeake Bay
April 13-19	Cumberland Island (GA) Camping
May 1-5	Canoeing and Camping, Dismal Swamp, VA
May 9-12	Fishing for Fun, Islamorada, Florida Keys
May 17-19	Cape Cod Whale Watch, MA
May 19	Horseshoe Crabs and Red Knots, Delaware Bay, NJ
June 6-9	Coast and Island Weekend, Spruce Head, Maine
June 14-16	New Jersey Pine Barrens
June 28-30	Canoeing and Camping, Delaware River, NY
July 6	Wreck Diving I
July 13	Shark Tagging
July 19-22	Island Ecology, Appledore Island, NH
Aug. 2-4	Expanded Chesapeake Bay Weekend
Aug. 4	Annual Crab Feast, Oxford, Maryland
Aug. 11	Wreck Diving II
Aug. 15-18	Cape Cod Ecology Weekend
Sept. 22	Wreck Diving III
Oct. 10-14	24th Annual Meeting, Florida West Coast
Oct. 18-20	Cape May Birding Weekend
Nov. 6-10	Canoeing and Camping, Suwannee River, FL
Nov. 21-24	Assateague Island (VA) Fall Weekend
Nov. 22-29	Bonaire Dive/Study
Nov. 23	Oyster Dive II, Chesapeake Bay
Dec. 8	Divers Environmental Institute

HOW TO SIGN UP FOR A TRIP

Select your trip(s) and write the Littoral Society, Highlands, NJ 07732, giving your name, address, **and a day and evening phone number.** Include the payment indicated. You will receive a confirming letter and more details of the trip. If it is close to the deadline, feel free to phone.

Trip costs may vary slightly depending on airfares and numbers of participants. Trips may be cancelled at the discretion of the Society; full refunds will be made.

Double Occupancy Explained: All trip costs are based on double occupancy where motel rooms are included. If single, you will be placed with a roommate. Prices and space limitations do not permit single rooms.

Cancellation Policy Explained: Members who cancel more than 21 days before a trip will, unless it is noted otherwise (see Bonaire trip description for example), receive a full refund less a 10% fee. Otherwise, cancellations are subject to a 50% fee.

All field trip charges include a 10% contribution to the Littoral Society.

Field trips are open to any interested person; non-Littoral Society members should add $15 to the field trip cost to cover handling charges and membership for one year.

Special Note for Scuba Divers: You must be 18 years old to scuba dive, and you must be certified by a nationally recognized organization. When reserving space on a scuba trip, enclose a photocopy of your certification card. Snorkelers are welcome on dive trips unless otherwise noted. Diving participation is at the discretion of the leader.

TO JOIN THE AMERICAN LITTORAL SOCIETY

Field trips are just one Society activity. A membership ($15 a year) brings you the Society's quarterly journal UNDERWATER NATURALIST, plus newsletter, local activities, and participation in conservation action. Please join today by using the form below. All dues are tax deductible.

American Littoral Society Highlands, NJ 07732
Please enroll me in the Littoral Society. I enclose a check for $ ________ ($15 reg., $10 student)

Name ____________________

Address ____________________

City ____________ State ________ Zip ________

Phone (day) ____________ (evening) ____________

In NOTES 292.11 we printed excerpts from an article by Donald R. Shasky - "Update on Mollusks with Indo-Pacific Faunal Affinities in the Tropical Eastern Pacific — II" - which appeared in the San Diego Shell Club's publication "Festivus" XV(11):109-110. Dr. Shasky told of his trip in April, 1983, to explore the marine fauna around Cocos Island and, of the many species found there, listed six mollusks that were previously unrecorded in the Eastern Pacific. They were: Viriola abbotti, Scalenostoma subulata, Cypraea talpa, Cypraea n. sp., Charonia tritonis and Favartia garrettii. In Part III of his "Update . . . " he reports in "Festivus" XVI(11):123-124) that on his March, 1984 trip "three additional Indo-Pacific species were found at Cocos Island that have not been previously reported from the tropical Eastern Pacific." These were Metaxia brunnicephala Kay, 1979, described from Hawaii, Cymatium nicobaricum (Röding, 1798) and Mitra ferruginia Lamarck, 1811.

Gene Everson, Dr. Shasky's companion on the 1984 trip, gives us additional details in an article published in the Jacksonville Shell Club's newsletter, "The Shell-O-Gram" 25(6):6, November - December 1984:

SHELL COLLECTING ON ISLA DEL COCO, COSTA RICA

Gene Everson

Isla del Coco, or Cocos Island in English, is a strange little island, six miles long, about 275 miles SW of Costa Rica in the Eastern Pacific (approximately half way between Costa Rica and the Galapagos Islands). With an annual rainfall of 22 feet and many freshwater springs, this tiny uninhabited island with 2,000 ft. high rock peaks and cliffs boasts over 200 waterfalls. And, like its isolated distant neighbors, the Galapagos, Isla del Coco has endemic species of birds and, of greater interest to us, shells.

This is the only place that I know where you can get a good start on a worldwide shell collection in one spot. There are four basic categories:

1. Species considered Indo-Pacific in origin that you would expect to find in Australia or the Philippines etc., and almost certainly no further east than Hawaii. These include: Cypraea talpa, caputserpentis and allisonae, Mitra mitra, papalis and ferruginea, Conus tesselatus and chaldaeus, Terebra maculata, Spondylus nicobaricus, Philippia radiata, Coralliophila neritoidea, Pseudocypraea adansoniana, Charonia tritonis, Morula uva, Viriola abbottii,described from Samoa, Scalenostoma subulata, reported in all tropical seas except the Eastern Pacific, Favartia garretti, until now known only from the Hawaiian Islands, Persicula pulchella, and Metaxia brunnicephala, another Hawaiian species.

2. Species typical of the Panamic Province, such as Cypraea isabellamexicana and albuginosa, Conus dalli, lucidus, tiaratus, purpurascens and diadema, Terebra strigata, robusta and ornata, Pleuroploca princeps, Fusinus dupetitthouarsi, Natica elenae and grayi, Tellina cumingii, etc.

3. Species that Florida collectors would consider Caribbean, such as Architectonica nobilis, Bursa granularis, Cymatium nicobaricum and pileare (although these species are also known from the Pacific), Tegula maculostriata, a Caribbean species that has been known from

Cocos Island since 1902 and nowhere else in the Eastern Pacific, and a deep-water form of Phalium centriquadratum which appears identical to our Phalium granulatum.

4. Species which are endemic or unnamed such as Oliva foxi (just described in 1984), Olivella cocosensis, several new species being named by Dr. Donald Shasky, including a new Trachypollia, Arene, Coralliophila, many small species and a large Phyllonotus measuring 5 1/4 to 7 inches.

Whoever said "East is East and West is West, and never the twain shall meet" had obviously never collected shells on Isla del Coco.

EARTHWATCH: FOR YOU?

Joan Koven
National Capital Shell Club

EARTHWATCH is a nonprofit educational organization which supports scientific expeditions around the world and recruits volunteers to work on the projects. Major areas of research include animal behavior, architecture, art, ecology, archeology, marine biology, ornithology, paleontology - many other fields.

To become an EARTHWATCH member one must file a regular application - $20 to be a member, $200 to join a team - refundable from trip expenses. The first requirement is to have a desire to participate in actual field research. Advanturousness, adaptability and hardiness are not just helpful but rather basic. If chosen, the remaining obligation is money, for the team is partially supported by team member contributions as well as by large corporate donations.

It provides the only vacation I know of that is real fun, serves a very good purpose, and for which the costs, including transportation, are tax deductible. As an example, I paid $1,345 for the two-week Fiji project, plus $1,100 air fare. Some U.S. projects cost around $500, while a crane study project in a remote area of China is about $3,000. Some scholarships are available, especially for science teachers and certain students. I found that team members come from a wide range of backgrounds.

The latest EARTHWATCH issue contains good resumes of 63 projects open for 1985 and the extraordinary range of projects seems almost unlimited: from studies of rock art in Australia, to the astronomers of Macchu Pichu and cultural anthropology in Nazca, Peru; excavations in Carthage, Majorca, and England, as well as in New Mexico, New York and Nebraska; Borneo's orangutans; Katmandu's temple monkeys; Hawaii's language work with two special dolphins - from butterflies to marsh life, fossils to turtles, the list goes on.

If you ask me - it can be one of the best investments and vacations you'll ever have! EARTHWATCH address:

10 Juniper Road
Belmont, Massachusetts 02178
Telephone: (617) 489-3030

(Reprinted from the Newsletter of the National Capital Shell Club, issue No. 79, page 15, Winter, 1984.)

WORK AND FUN TIME IN FIJI

Joan Koven

National Capital Shell Club

Fleeting Fiji memories: The whistling teakettle next door awakening us to the long sunrise shadows that reached out into the stilled bay to a boatman walking his boat ashore, and into the land crabs that skittered into holes big enough to lose an ankle in; the mosquitoes that I hadn't fed during the night taking breakfast at the bottom edge of my sarong; and the ants marching purposefully on my nice pile of turban shells. So quiet, unhurried and altogether satisfying.

Some of us go farther than others to find a vacation with a purpose. I usually head for tropical seas and diving but this year my get-away-from-the-real-world trip was truly far out, to Fiji's Malololailai Island, on an EARTHWATCH marine science expedition. I'm still aglow! With me were ten other volunteers on a coral reef community inventory and mapping project for University of Toronto's professor David Kobluk.

It all began with oil exploration in the 4 to 5 million-year-old fossil coral reefs that once edged Pangaea, the super continent of earth's origins. Although we still have much more water than land, today's reefs, living parts of the oldest and most complicated ecosystem in the planet's history, are declining — as seen from a mere 100,000 year trend. Oil tends to percolate downward into the myriads of coral reef cavities which have subsided in present land masses and offshore. David hopes to pinpoint oil deposits through study of living reef communities and comparison with fossil cavities. He has had a similar study going off Bonaire in the Caribbean since 1979, using only scuba divers.

On the typical work day our group gathered early for the 10 a.m. low tide, buckets, rulers and slates in hand, to trek out of the hotel's mall to the grass-edged landing strip which the pen-jumping goats kept mowed - among toads hopping everywhere - to the strip's far side, where David directed us to the reef section to be covered each day. Some days we walked nearly the entire length of the 3 km. reef before entering the water.

Ideally, with tide nearly out, it was fairly easy to get past the grass, oysters and barren zones to the micro-atoll and rubble areas with boulders that could be lifted, but we got some real leg-muscle-builders when thigh-deep wading was required. We got better acquainted during resting stops on those days.

On our slates were Latin names for the most common 44 of the 643 coral species found in the South Pacific, with spaces for their location, form and size. At the first identification sessions we wracked our brains for metaphors to help memorize: Acropora humilis (looks like hollyhocks), Polyphylia dalpina (interesting name for someone else's daughter), etc. But a day or two on the reef, plus many calls to David and Mary Lysenko, his assistant, and we werecognizing commoner corals as old friends.

Good old Porites stephensoni or Unidentified #3. Lifting over 80,000 pounds of boulders each, we charted close to 5,000 coral specimens, each one measured, located, and form identified, ready for computer entry. The goal was random sampling from the 1 x 3 km. reef off this remote island.

My backpack held snorkel and mask, tweezers, and my lunch, the tweezers for plucking the tiniest mollusks from holes bored into the boulders by clams, sponges and wave action. They were collected along with larger shells in the buckets. When we were as much as four feet above movable boulders, we snorkeled under to get the data below, then recited it to a team member back on top, but sometimes it was easier to lift the boulder completely out for another to identify and record the data.

Often things would slip out from under a boulder, many brittle stars racing for cover, electric blue and yellow starfish, small fish, sometimes an eel, and, fortunately just a few, banded coral snakes.

They are among a number of poisonous sea snakes found only in the Pacific but they seldom bite people. Their fangs are too far back in the jaws, so it is unlikely that one would get bitten without sticking his finger into the snake's mouth. Sea urchins were in some cavities and their spines seemed to reach into fingers in spite of gloves. The spines cannot be pulled out but with firm rubbing will break up and gradually work out or be absorbed.

OH, THE SHELLS! Those we collected were magnificent. Each species seemed to like a particular section of the reef but never have I seen such a variety in one location. It was also a rich breeding ground. Egg cases abounded. In the sand below the boulders were the cone shells. Some were dangerously toxic so we handled them with extreme care - they never go into a pocket. The white proboscis of the Textile Cone is banded bright red, almost as a warning.

My cone collection is now 20 species broader. Of the beautiful cowries, I collected 28 species from .5 cm. to 7.5 cm., some still not identified. Then there were the murex, miters, drupes, frog shells, tops, augers, terebras, tritons, lambis, harps, strombs, olives, and bivalves of every sort - no end to the list.

I was not the only "shell freak" in our group. Our poor kitchen! It always had the unmistakable perfume of dead mollusks and much of my free time was spent cleaning shells. Now it is my house that smells that way and my best table is full of shells to identify. Each one reminds me again of that wonderful reef!

Afternoons free from project work I spent diving with others and the resident dive master, Manasas. Our first dive on "The Pinnacle" was a spectacular introduction to Fijian reef depths and the endless variety of soft corals of every hue. We began at the bottom, about 70 feet, where Manasas fed frenzied groups of the most colorful fish ever to be imagined! My dive log reads psychodelic in fish and coral colors and I always surfaced with mind ablaze. We were experiencing a glorious wilderness untouched by human devastation, a beauty and grandeur unknown to most of the world.

We dived the Malolo barrier reef in a different spot each time, every dive truly memorable, if only the next hadn't been more spectacular. I have delicious memories - of being stranded on a nearly unsheltered atoll with my packed lunch while Manasas went back, for hours, after more air; of a boat chase with spinner dolphins, and of a coral snake trying to share our shade!

This is how we ate and drank: The Bistro at Dick's Place served excellent lunches, and its dinners were equally good and were served with fabulous sunsets, where, at 6:00 p.m., we had a kaleidoscopic view. FouFou, a charming waitress, served us alternately from the "specials" and an a la carte menu that ran from curries to Steak Diane, from fresh raw fish marinated in coconut milk to roast chicken. Alan, our chef imported from New Zealand, took his bows gracefully when the local band began sipping Kava and playing for the regular dinner crowd. Kava is an intoxicating brew made from a Fijian root - it numbs the tongue and lips with the first sip and tastes rather like perfumed soap, so I never discovered what the other effects were.

Leaving Malololailai Island was the hardest part of my EARTHWATCH experience. David and Mary saw us off - but my vacation wasn't over. After a ten-minute flight to Nadi, Jeanette, a fellow team mate and I boarded another twin-engined plane (same pilot) for Taveuni, Fiji's Garden Isle. I'll catch my breath and then tell you about that great exploration.

(Reprinted from the Newsletter of the National Capital Shell Club, issue No. 79, pages 6, 7, Winter, 1984.)

AQUACULTURE AT HARBOR BRANCH

Harbor Branch Foundation, Inc., long known for its work in undersea technology and oceanography, is fast gaining respect for its research in applied marine biology. The Harbor Branch Institution, an affiliate of the foundation located at the same site in Fort Pierce, Florida, and its year-old Center for Marine Biotechnology (CMB) are involved in developing new aquaculture technology that could have commercial application. Dr. John Ryther, the center's director and an acknowledged world-wide authority on aquaculture, is working with the staff of research associates on aquaculture projects in marine algae, tropical and subtropical mollusks, and several species of marine and brackish water fishes.

The mollusk research, managed by Leroy Creswell and Mary Schilling, has been directed toward developing aquaculture methods for new, unutilized species of bivalves, such as the angel wing clam (Cyrtopleura costata).

Other mollusk projects at CMB include work on the Philippine green mussel (Perna viridis) and the queen conch (Strombus gigas). A number of Caribbean island nations are interested in hatchery technology for the conch to help replenish depleted natural populations. CMB is already working in two such areas in an effort to establish operational conch hatcheries.

From an article by Randolph W. Hagood,
Research Manager, Harbor Branch Institution
in Sea Technology 25(8):63,67 August 1984.

See: NOTES 273.8, Queen Conch Culture (Iversen and Siddall)
273.9, Reproduction in Strombus gigas (Hesse and Hesse)
286.16, Conch Shortage Spurs Efforts (Wall St. Journal)

BAILER SHELLS AT CEDUNA — A LONG WAY FROM ANYWHERE

Vilma Wicks
Unit 3/2 Moonya Rd., Carnegie 3163
Victoria, Australia

Ceduna, on Australia's southern coast, lies at approximately 32 S. Lat., 132 E. Long., and is a long way from everywhere. Known to the first European settlers as Murat Bay, it took its present name in about 1900 from the Australian Aboriginal word "chedoona," meaning "a place to sit down and rest." Its bay occupies one of the few breaks in the walls of cliffs that span the southern edge of the continent from east to west. It was in the shallow waters of one of these sheltered bays that I found the bailer shells.

Melo miltonis, the Southern Bailer, is more cylindrical than the Northern Bailer, and has many broad as well as tent-like marks of cream on brown. The shell has a purple haze with cream to golden polished interior with a pink band near the outer lip. It is a distinctive shell which is easy to recognize. My two shells, gathered alive whilst my son, Graeme, was diving under water at Ceduna, each measure 10 3/4 inches long. The species, classed as uncommon, can be found from western Victoria and South Australia to Geraldton in Western Australia.

Graeme describes the station: "At Ceduna the tide range is average and there are two highs and two lows a day. Both the rocks and reef were covered with brown weed — the main species, I guess, was _Eklonia radiata_, but in the rather stunted and much crinkled version you get in more sheltered waters. The Bailers were found among these weeds and, as I recall, one of them was lying on its back, with its big foot exposed, because it had just pulled a _Haliotis_ off the rock. I didn't recall they were on the sand; I have the idea they were more among the rubble of the reefs. Anyway, the bay was quite sheltered, and it was one of the few places for thousands of miles of coast where the ocean swell did not reach directly."

Ceduna — about 500 road miles west of Adelaide, capital of the State of South Australia, and near the middle of the Great Australian Bight — was a frontier town when I went there in 1957. We arrived just after 9 o'clock at night and could not get a meal anywhere because we were too late.

In the Bush Nursing Hospital an Aborigine was near death from sorcery because a bone had been pointed at him in punishment for breaking tribal law.

Cedula was the last township before the plunge across the vast Nullarbor Plain (from the Latin "nulla arbor" = "no tree") by way of an axle-breaking dirt road, called the Eyre Highway, with gasoline stations few and far between. In the town, clean cars were from the east, and the dirt-covered and battered ones were always from the west. Except for the few hundred people who lived there, Ceduna was an overnight stopping place on the 1700-mile journey between Adelaide and Perth, the Western Australian State capital.

Today Ceduna is a tourist resort. There is plenty of interest to see, and good water sports facilities. Hotels, motels and caravan parks provide a good choice of accommodation. Demand is heavy from August to November, the good time between the winter storms and the summer heat. Ceduna is a site for a communications earth station which played a vital role in United States' space flights. A microwave repeater station is a key link in east-west communications across the Australian continent. The port handles grain, salt and gypsum. It is also the base for a big fishing fleet.

For mile after mile, the square-cut cliffs of the Great Australian Bight have vertical faces backed by land as flat as a calm sea. In fact, they vary from 100 ft. to 150 ft. high. They consist of a fine-grained limestone which was laid down in the Tertiary Period. Behind them, the Nullarbor Plain is part of the same 20 million-year-old limestone structure.

Although it receives a reasonable rainfall (for a dry continent like Australia), the Nullarbor has no rivers or creeks. Rain soaks quickly into the porous limestone, and drainage is underground. Hence there is no water to support a thriving vegetation. Another result is the formation of a vast network of caves. Some of them are bigger than football stadiums and have lakes big enough for boats. The roof of Koonalda Cave, northwest of Ceduna, is 220 ft. above the water of its lake, and there are bigger caves. On a section of the wall of Koonalda Cave are markings that look in photographs like faint ripple marks, or snail trails on a tidal flat, or the crisscrossings of a rough basketweave. But they are none of these. They are the finger rubbings of Aborigines made, according to carbon dating tests, more than 20,000 years ago — that is, at least 15,000 years before the first people settled in Egypt.

When Jonathan Swift was planning to write "Gulliver's Travels" more than 250 years ago, he located his story in the most distant and deserted part of the world he could think of. According to his map, Lilliput is one of a small group of islands south of Ceduna. This was no accident. Swift took his directions from a map drawn by the Dutch explorer Pieter Nuyts in 1627. Lilliput and the neighbouring Blefescu, to which Gulliver eventually escaped, were the islands of St. Pieter and St. Francot in the Nuyts Archipelago. Other parts of the southern coast of Australia — then called New Holland — can be pinpointed on Swift's map: the land of the Yahoos, for example. is close to Cape Leeuwin, in Western Australia.

Ceduna has also been the base port for attempts on shark fishing records. The world's biggest white pointer sharks are said to cruise in the waters of the Southern Ocean. This is where the sequences in the film "Jaws" involving live white pointers were shot.

* * *

For illustrations, see page 216, Compendium of Seashells, 1982, by Abbott and Dance, for the Southern Bailer, _Melo miltonis_ Gray in Griffith and Pidgeon, 1834. See Sea Shells, 1974 (Bantam paperback) by S. Peter Dance, page 145, for the Northern Bailer, _Melo amphora_ Lightfoot, 1786 (Syn: _diadema_ Lamarck, 1811).

MARINE EDUCATION CONFERENCE

The next National Marine Education Association Conference has been scheduled for July 30 - August 3, 1985, at the Virginia Institute of Marine Science, School of Marine Science of The College of William and Mary, Gloucester Point, Virginia 23062. Although the conference will focus on the Chesapeake Bay, related papers on seafood education, aquarium education and operation, maritime heritage, and marine science have been invited.

A separate symposium on the Chesapeake Bay will be held during the conference on July 31. Particular areas of interest cited by symposium sponsors include the biology, geology and chemistry of the bay, toxic substances, life cycles of individual marine species, the fishing industry and coastal resource management.

Sea Technology 25(12):66, December 1984

MORRIS KARL JACOBSON
SCHOLARSHIP FOR MOLLUSCAN STUDIES

The Astronaut Trail Shell Club of Brevard County, Florida, again offers a grant of $500.00 to a student who is registered for a Masters or Ph.D. degree in an accredited Florida college or university and is engaged in a research project, or preparing a thesis, dealing primarily with the natural history or systematics of mollusks. Applicants should submit a brief educational resumé, an outline of the research project, the use to which the money will be put, and a letter of recommendation from his or her chief advisor. Applications should be mailed to the Chairman of Scholarship Awards, Astronaut Trail Shell Club, P.O. Box EG-515, Melbourne, FL 32935 before March 1, 1985.

THE 1985 WORLD SIZE RECORDS

Supplement 3, Standard Catalog of Shells, by Wagner and Abbott

Over 1,000 up-to-date maximum size records of world seashells are now published annually in a convenient looseleaf booklet ready to be slipped into your master binder for the Standard Catalog of Shells. For those wishing to keep the World Size Records separately, the 32-page booklet is bound in a colorful wrapper. The 1985 issue features Marginella shells.

This new supplement has just published results from 21 museums and over 300 private collections. The internationally accepted records list the champion sizes alphabetically by genera, give measurements of the largest known specimens, their geographic sources and their present owners. When known, the collector is recorded and the date of discovery given.

$7.00 postpaid from American Malacologists, Inc., P.O. Box 2255, Melbourne, Florida 32902 (Florida residents, add $.30 sales tax.). Entire Standard Catalog, with binder and all supplements: $60.00 postpaid (Florida residents, add $3.00 sales tax.).

Publisher's announcement

DID YOU KNOW

that last spring Congress passed a joint resolution designating July 1, 1984-85, as the Year of the Ocean?

Sea Technology 25(7):7

GROWTH AND DISTRIBUTION OF MOLLUSKS AT DEEP-SEA VENTS AND SEEPS

by R. D. Turner and R. A. Lutz. A report published in Oceanus 27(3):54-62, Fall 1984, by Woods Hole Oceanographic Institution.

Since the surprising discovery of life in the hydrothermal vents of the Galapagos Rift (See NOTES 279.2), further explorations have located several more such areas. Dr. Turner has included the outline of a map with species sketched in for each of eight areas of the eastern Pacific — ranging from the Galapagos Rift to the south to Explorer's Ridge off the U.S./Canadian border. In all, 48 species of deep-sea hot vent and sulfide seep mollusks have been collected or photographed to the date of this report. Many of the mollusks are not yet named.

In this Oceanus article, the authors write of the current studies of the biological processes and dispersal capabilities of these creatures whose deep-sea habitat would seem to make such work impossible. One of their descriptions is of their growth rate studies of living specimens — in situ. We quote: "The ... technique, mark-recapture, has been utilized successfully to estimate the growth rate of the mussel common at the Galapagos Rift hydrothermal vents and also found along the East Pacific Rise at the vent fields between 11 and 13 degrees North and between 77 and 22 degrees South. In these studies, conducted at the Galapagos "Mussel Bed" site, the shells of the living mussels were abraded with a small triangular file along their growing margins on February 12, 1979, with the use of 'Alvin's' (Dive 887) manipulator arm. All file marked specimens were located within a single clump of mussels that was marked with a plastic coated cube. The living specimens were recovered on December 3, 1979, after 293 days. ...Mean growth rates were estimated to be approximately 1 centimeter per year for mature vent mussels and the largest specimen collected (shell length, 18.4 centimeters) was estimated to be 19 ± 7 years old."

Again, discussing possible methods of dispersal: "Specimens of 25 of the 48 species collected have the larval shells" (gastropod protoconch, bivalve prodissoconch) "sufficiently well preserved to infer modes of larval development. Of these well preserved species, only two gastropods (both turrids, one from the Galapagos Rift and one from 21 degrees North) and the two species of mussels have planktotrophic development. all of the remaining gastropod species (1 trochid, 6 coiled trochiform archeogastropods, and 14 archeogastropod limpets, have larval shell morphologies indicative of nonplanktotrophic modes of development."

In Sea Technology 25(11):9, November 1984, Compass Publications:

HOT VENTS AND EXOTIC ANIMAL LIFE FOUND ALONG MID-ATLANTIC RIDGE

"Hot deep-sea vents occurring along sea-bottom spreading zones were first discovered in 1977 in the Pacific Ocean near the Galapagos Islands west of Ecuador. They harbored plant and animal life that live by chemosynthesis, rather than photosynthesis. Other discoveries were made in the South Pacific and in the Pacific Northwest off the U.S. and Canada (See NOTES 292.14. -Ed.). Now similar vents have been found in the Gulf of Mexico and along the ridge in the Atlantic west of Dakar, Africa. Another site along the mid-Atlantic Ridge was found in 1982, 2900 kilomwtwes east of Miami. The most recent three finds are 800 to 1600 kilometers south of the 1982 find. The discoveries were made by a research team of the National Oceanic and Atmospheric Administration (NOAA). Team scientists, using instruments and samplers attached to cables up to 3962 meters long, were able to determine water temperatures and chemical concentrations. Using cameras, the scientists identified giant clam-like forms among the rocks, the first indication that mid-Atlantic Ridge vents may have life forms similar to those observed in the Pacific. Scientists from NOAA, Cambridge University, Florida Institute of Technology, Woods Hole Oceanographic Institution and Rutgers University were embarked in the NOAA ship 'Researcher'."

Dorothy Raeihle

SHELL STAMPS

A notice from the Boston Malacological Club advises that the first United States seashell postage stamps will be issued by the Postal Service on or about March 14, 1985, with the Museum of Comparative Zoology the site of the First Day of Issue ceremony. The date also marks the 75th anniversary of the Boston Malacological Club.

The Club is offering to stamp collectors and shell collectors a professionally prepared first-day cover cachet envelope, with all five of the new shell stamps, cancelled on the First Day of Issue. The price is $5.00 each. Sale of this special cover will benefit both the Club and the William J. Clench Scholarship Fund.

The commemorative design on the cover notes the AMU 1985 meeting (which will be hosted by the Boston club) and has illustrations of Epitonium championi Clench and Turner and Neptunea decemcostata (Say) superimposed on an outline of a diamond (for the club's diamond jubilee).

The Boston club is inviting other shell clubs to send in bulk orders wherein a bundle of cachet envelopes can be mailed to one address in a larger envelope; a 20% discount is offered on bulk orders of 12 or more cachets to one address if the order is postmarked by March 2, 1985. Single orders (@ $5.00 each) should be accompanied by a self-addressed, stamped envelope with 22¢ postage. Checks should be made payable to the Boston Malacological Club and sent to the club c/o Edward C. Nieburger, Chairman, Shell-stamp Committee, P.O. Box 3095, Andover, Massachusetts 01810.

* * *

NOTE: Locally, our members Jack and Myrna Golden have the Golden Associates Stamp Company in Cedarhurst, Long Island, and will be handling the first-day covers. (See their advertisement on the enclosed sheet.) Their telephone: (516) 791-1863.

DID YOU KNOW

that the world's largest exposed coral reef is the 375 million-year-old fossil bed at the Falls of the Ohio? The Army Corps of Engineers is working to purchase, preserve and protect the geological treasure within a planned 1400-acre National Wildlife Conservation Area.

Louisville Courier-Journal 9/9/84

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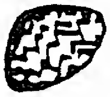

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Items and articles for publication in the NOTES should be sent to the Editors.
The Corresponding Secretary should be notified promptly of any change of address.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 419, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETINGS: JUNE 9, 1985

ANNUAL MEETING: Election of 1985-86 Officers

MINI-TALKS: Club members' recent activities and interests

American Museum's Exhibit of the Month opens

JUNE 18, 1985

SUBJECT: Collector's Choice: Sea Shells of Nathan L. Halpern (see page 5 for details)

SEPTEMBER 8, 1985

First meeting of 1985-86: come with your suggestions for programs and activities. Fall programs will be listed in the September "Shell Notes".

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HIGHLIGHTS OF THE JANUARY MEETING

President Mary Anne Bastek said she would like to organize a trip to the Delaware Museum of Natural History, perhaps in early May. She asked for a show of hands to denote interest, and the count was fifteen. It was suggested that this might be done jointly with the Long Island Shell Club.

Edna Christensen drew attention to a letter from Capt. Alex Roth of Guam, author of the recipe book, "Molluscan Melange." Capt. Roth would be interested in trading shells with someone here. Theta Lourbacos displayed a copy of "Seashore Curriculum Unit," a textbook used in the Corpus Christi, Texas, public schools.

The program was a slide show created by Mrs. Olive Schoenberg of Hawaii. It was one of the "Shell Lecture" series, and was titled "Molluscan Camouflage." The script was read by Walter Sage. Mrs. Schoenberg, who was an underwater photographer, included shots of both shells and animals, explaining how their colors and patterns often function as camouflage, but also illustrated some apparently glaring exceptions. She divided her subjects into three groups: sand dwellers, pelagic, and rock dwellers. The first group included *Terebra*, *Mitra*, *Oliva*, *Cerithium*, *Harpa*, *Pinna*, *Conus* and *Nassarius*. The second group was represented by *Janthina*, and the third group by *Cymatium*, *Murex*, *Coralliophila*, *Distorsio*, and *Cypraea*.

Mathilde Weingartner brought a box of shell-shaped chocolates that she had received as a Christmas gift, and shared them.

Milton Werner, Recording Sec'y.

HIGHLIGHTS OF THE FEBRUARY MEETING

President Mary Anne Bastek reported that planning is in progress for the spring bus trip to the Delaware Museum of Natural History. She also asked for volunteers to meet at the Museum in the near future to sort and price shells donated by the Museum to the April auction.

The speaker was Neil Landman, assistant curator in the American Museum's Department of Invertebrates. His subject was *Nautilus*. He noted that it lives at 1,500 to 1,800-foot depths, and that some have been caught and tagged for study. They were taken in traps baited with chicken. It is believed that they live about twelve years. Only infertile eggs have ever been seen, and the first discovery of a capsule, which is over an inch in diameter, was by Arthur Willy in 1901. Most *Nautilus* hatch when they have seven chambers, one indication being that the eighth chamber is usually narrower than adjacent ones. The last chamber of a fully developed specimen, approximately the thirtieth, is also usually shallower than the preceding one. Dr. Landman showed slide photos of shells, living specimens, and sectioned shells. Explaining a photo of a size-series of nine shells, he said it had been made by peeling back mature shells to earlier and earlier stages of growth, and had been done in about 1900.

Noting that there are four extant species of this cephalopod, all in the southwestern Pacific - *pompilius*, *macromphalus*, *scrobiculatus* and *belauensis* - he also showed photos of ammonites, fossil ancestors of *Nautilus*. Among the collecting locales for these ammonites are the mountains of South Dakota and Jurassic strata in Whitby, England. Some of these fossils are coiled, some U-shaped and some straight.

In the discussion that followed the presentation, Rose Kurss said that of the few living specimens in the New York Aquarium, some had died of the contamination caused by an exposed copper fitting in their tank.

On display during the meeting were Oliva sayana and Phalium granulatum, collected in 1984 at St. Joseph Island, Texas, from among many that appeared dead on beaches following a cold spell that had hit the southern states.

A booklet describing the March 1985 Sanibel Shell Fair was also on display.

Milton Werner, Recording Sec'y.

HIGHLIGHTS OF THE MARCH MEETING

President Mary Anne Bastek reported that she hasn't been able to reach Russell Jensen of the Delaware Museum about our planned bus trip there, because Russ has been in Mexico.

Mary Anne also reported that material received to date for the April auction had been sorted and labelled, and that admission will be $2. Carol Lindsay circulated sheets to be signed by volunteers who will bring cakes and snacks, and those who will arrive at the dance studio by 1:00 p.m. to help with final preparations.

It was noted that Dr. Harold Sussman is very ill. A card was circulated for signatures, and his address was put on the chalkboard for anyone wishing to send an individual card (4523 Avenue H, Brooklyn, New York 11234).

On the table was a copy of the Audubon magazine for March, in which are photos of shells. The American Museum lent the shells to the photographer.

The program was a slide presentation titled "Shell Collecting on the Great Barrier Reef." Barbara Collins, of Australia, took the photographs and wrote the accompanying script, which was read by Walter Sage. The locations were the Cairns Section of the reef, and Oak Beach and other areas north of the Cairns Section. Her fine and most interesting photographs included specimens seen live in situ and in tanks, cleaned shells, and their habitats — small islands, coral formations, mud flats, mangrove swamps, etc. A few freshwater and land shells were included.

Milton Werner, Recording Sec'y.

HIGHLIGHTS OF THE APRIL SOCIAL

The 335th meeting of the New York Shell Club, being an annual social and auction meeting, was held at the Broadway Dance Studio, Astoria, Queens — courtesy of our member Dorothy Jensen— on April 14, 1985. Attendance was 54 members and friends.

The studio was opened at 1:00 p.m. to permit previewing of the auction material and browsing at the sale table, which was presided over by Frank Nelson.

Vice President Carol Lindsay opened the meeting at 2:15 with a greeting. She also announced the date of the trip to the Delaware Museum - May 18. Since it is not yet known how many will go along, transportation arrangements have not been decided on.

Auctioneer Marty Gill then went into action, assisted at the table by Sol Weiss, and on the floor by Chuck Lindsay. The array of shells and related materials was excellent and extensive. A few of the most notable, and the prices at which they were knocked down, were:

Conus cedonulli, $45; a small Voluta bednalli, $30; Cypraea eglantina niger, $30; Conus samiae, $25; Teramachia tibiaeformis, $25; Cypraea thalassiarchus, $23; 144 small plastic boxes containing miniature shells, $22; Murex problematicus, $25; Conus princeps, $22; Murex brevifrons, $21; a copy of "The Living Volutes," Weaver and DuPont, autographed by Weaver to Ray Summers, $20; Astraea heliotropium, $19; Cypraea petitiana, $20; Voluta imperialis robinsona, $18; Cardium pseudolima, $16; "Compendium of Seashells," Abbott and Dance, $16; Lyropecten nodosus, $15; Conus armadillo, $15; Conus circumcisus, $15.

An etching with water color, by Arlene Reimann, sold for $15, and three drawings by Al Scarpetti went for $25 each.

The raffle prize was a Tridacna squamosa, and the door prizes were (1) note paper and a table mat decorated with shell pictures, and (2) a Riker mount with several Pinctada.

The refreshment table, open throughout the meeting, offered wine, punch, cheese, cold cuts, homemade cakes and coffee.

Milton Werner, Recording Sec'y.

JOSEPH ROSEWATER

We were saddened to learn that Dr. Joseph Rosewater, Curator of Mollusks at the United States Museum of Natural History, died of cancer on March 22, 1985, at the age of 56. Our deepest sympathy is extended to his wife, Mary, and their children.

The Joseph Rosewater Fellowship Fund has been established to help support students of systematic malacology who come to work in the Division of Mollusks. Contributions in his memory should be made payable to the Smithsonian Institution and sent in care of Dr. Richard Houbrick or Clyde Roper of the Division of Mollusks, USNM, Washington, D.C. 20560.

Joe Rosewater was born September 18, 1928 in Claremont, New Hampshire, and attended the University of New Hampshire where he attained his BS and MS degrees. He received his doctorate from Harvard in 1960, where he had become a student of the late Dr. W. J. Clench.

His association with the Smithsonian dates from 1960, when he joined the Division of Mollusks as malacologist. He became Curator of Mollusks in 1968, his position at the time of his death.

He will be greatly missed by his many friends and associates.

AMNH Exhibit of the Month Opens on June 18, 1985:

COLLECTOR'S CHOICE: SEA SHELLS OF NATHAN L. HALPERN

The American Museum of Natural History collections include more than two million shells - marine, land and freshwater - obtained through expeditions, gifts and purchases. Significantly, about 80% of these specimens come from major private collections presented to the Museum.

Nathan L. Halpern, a local shell collector much interested in the study of mollusks, has enriched the Museum's collections by his generous gifts of specimens and funding of purchases. These important acquisitions have filled biological and geographical gaps in the collection and have strengthened the mollusk program of the Museum. This exhibit shows a selection of shells acquired through Mr. Halpern's contributions, including rare and unusual shells added to the collection by the Halpern Malacology Fund.

Located near the entrance to the Mollusk and Mankind Hall, this exhibit was prepared with the generous support of the Arthur Ross Foundation.

It is expected that the exhibit will run through the summer.

William K. Emerson

CALENDAR OF EVENTS

JUNE 16 - 20	Shellfish Institute of North America/National Shellfisheries Association 77th annual convention will be held in Norfolk, Virginia, at the OMNI International Hotel, 777 Waterfront Drive, Norfolk, Virginia 23510. Technical and general sessions; social functions, sightseeing. For information and/or registration forms, write to: Roy E. Martin, SINA, 2000 M Street N.W., Suite 580, Washington, D.C. 20036.
JUNE 22	IV ème Salon International du Coquillage, Luasanne, Switzerland. Contact: Ted W. Baer, CH-1602 La Croix, Switzerland, (0) 21 39 37 71.
JUNE 22 - 26	The Conchologists of America convention will be held in Philadelphia at the Holiday Inn in the historic district. Highlights: The Philadelphia Shell Club will host the gala reception at the ANSP, observing the 30th anniversary of the Club's founding by Dr. R. Tucker Abbott. The convention will offer an excellent series of lectures, workshops, bourse and auction, exhibits, field trips. Inquiries to: Janet Thompson, Attention: COA, 2015 Hopkinson House, 602 Washington Square South, Philadelphia, PA 19106 (215: 625-9580).
JUNE 28 - 30	Rhinebeck Crafts Fair, Dutchess County Fairgrounds, Rhinebeck, New York. An annual fair, famous in the northeast, this one is just for fun. The many crafts will include some shells. Admission $4.00. No pets. For information, contact: MII Productions, Inc., P.O. Box 93, Vernon, Connecticut 06066.

(continued next page)

JULY 4 - 10 Third International Congress of Systematic and Evolutionary Biology, at the University of Sussex, near Brighton, England. Contact: Prof. Barry Cox, ICSEB Congress Office, 130 Queen's Road, Brighton, Sussex BN1 3W3, United Kingdom.

JULY 16 - 23 Second International Cephalopod Symposium, Tubingen, Federal Republic of Germany. Comprehensive studies; field trips. For details, contact Prof. Jurgen Kullmann, Geol.-Palaont. Institut, Sigwartstr, 10, D-7400 Tubingen, Federal Republic of Germany.

JULY 26 - 28 Jacksonville Shell Club Shell Show at the Jacksonville Beach Flag Pavilion, 101 North Second Street. For information, write: Charlotte Lloyd, General Chairman, 1010 North 24th Street, Jacksonville Beach, Florida 32250 (904: 246-6888).

JULY 28 - AUGUST 2 The American Malacological Union will hold its 51st annual meeting at the University of Rhode Island, Kingston, under the guidance of AMU President Melbourne R. Carriker. The meeting will be co-sponsored by the Boston Malacological Club, which is celebrating its 75th anniversary, and will honor the memory of Dr. William J. Clench.

Three symposia will be presented: ecology of freshwater mollusks, biology of egg encapsulation, and radulae. Contributed talks will include sessions on marine, freshwater, and terrestrial topics, plus molluscan larval culture in Latin America and the Caribbean. Field trips will offer marine or freshwater habitats, or you may choose to take a special bus tour. There will be a poster session. Other highlights: The Boston Club's anniversary party, shell club programs, exhibits and sales, the auction, and for a finale, Friday's Lobster/Clam Bake!

Housing on campus will be at Fayerweather Dormitory in units of two bedrooms to one bath. Cost for double occupancy is $10.75/person/night, single occupancy $15/person/night; there is also an initial linen charge of $5.00/person. Room fees are payable on arrival, however, reservation should be indicated on the reservation form, together with the anticipated on-campus meals.

For further information, please contact Dr. M. R. Carriker, College of Marine Studies, University of Delaware, Lewes, Delaware 19958 (tel. 302: 645-4274).

AUG. 18 - 21 The 18th annual meeting of the Western Society of Malacologists will be held on the Santa Barbara campus of the University of California. The main emphasis will be on the molluscan fauna of the Eastern Pacific with sessions including land snails, paleontology, etc. There will also be a symposium on Hawaiian mollusks chaired by Mrs. Beatrice Burch. A full schedule of contributed papers is planned in addition to symposia, molluscan natural history notes, exhibits, workshops, field trips, and shell and book auction.

For further information, contact Conference Chairman William D. Pitt, 2444 38th Avenue, Sacramento, California 95822.

SEPT. 21 - 29 Oregon Shell Show, to be held in Portland, Oregon. For information, contact Dr. Byron Travis, 4324 NE 47th Avenue, Portland, Oregon 97218.

OCT. 4 - 6 Crown Point Shell Collectors Study Group announces their second shell show, "The Spell of the Shell," to be hosted by Southlake Mall, in Merrillville, Indiana, at the intersection of US Route 30 and I-65. The judges will be Dr. R. Tucker Abbott and Walter E. Sage III, scientific divisions, and Cecelia Abbott who will judge art work and shellcraft.

Inquiries from prospective exhibitors and dealers are welcome. Further information can be obtained by writing to Crown Point Shell Collectors Study Group at P.O. Box 462, Crown Point, Indiana 46307.

OCT. 12 - 13 Santa Barbara Shell Show, Santa Barbara, California. For information, contact Don Rathbun, 5604 Berkeley Road, Galeta, California 93117.

OCT. 26 - 27 North Carolina Shell Show, Wilmington, North Carolina. For information, contact Alta VanLandingham, P.O. Box 542, Hampstead, North Carolina 28443.

OCT. 27± Geological Society of America National Convention, Orlando, Florida. A Short Course on Mollusks, organized by D. J. Bottjer, C. S. Hickman and P. D. Ward and sponsored by the Paleontological Society, will be offered on October 27th at this meeting.

(Sources: AMU, COA, SINA/NSA, NYS Div. Tourism, Festivus, Nautilus, Donald Dan in Thatcheria, and Crown Pt. Study Group. -Ed.)

REVIEWS:

RED SEA SHELLS

by Doreen Sharabati. 1984. Routledge and Kegan Paul, London, 128 pp., 49 full color plates. Price $17.95.

The Red Sea, situated at the extreme northwestern end of the vast Indo-Pacific molluscan province, is known to students of mollusks for the number of endemic species and populations that are closely related to the molluscan inhabitants of nearby waters. This book by the author of the useful Saudi Arabian Seashells provides excellent illustrations of several hundred gastropods and bivalves, two cephalopods, two chitons, and three scaphopods collected in the Red Sea by the author and her friends. Voucher specimens of most species treated here have been deposited in the British Museum (Natural History). Identifications are stated by the author to be tentative, pending further collecting and study.

Introductory material discusses classifying shells, molluscan classes, general features of the Red Sea, and particular molluscan habitats.

Information is also given on collecting and cleaning shells, and on labeling a collection. A glossary of terms, bibliography, index to common names and index to scientific names is provided. The assistance of many colleagues and scientists is acknowledged, including Solene Morris for the bivalve section and Nathalie Yonow for the section on opisthobranchs.

The bulk of the volume is devoted to the plates and the accompanying text. The superb photographs by the author's husband should allow for easy comparison of actual specimens to the plates. The treatment of species includes family placement and generic and specific names with author and date (unless the species is identified only to genus level). Size of specimens and habitat information is provided, but precise geographic locality within the Red Sea is not given. Living mollusks are not shown, except for eighteen opisthobranchs.

The plates and descriptive text are not arranged by systematic classification, and it would seem possible that the species collected were grouped to ensure quality photography and then identification attempted. However, this system does not detract from the usefulness of the volume, and the author and her associates are to be congratulated for producing a most welcome book. It is, in this reviewer's opinion, unfortunate that the reader has to continually refer to a numbered chart to determine the identification of species, but this is admittedly a minor criticism. The fine quality and modest price will help ensure that this volume is widely used, and the book is highly recommended for anyone interested in Indo-Pacific mollusks.

Walter E. Sage

Red Sea Shells is the first popular book published on shells of this area in over 100 years.

F.S. in Sea Frontiers 31(3):185

MOLLUSCAN MELANGE:

How to Prepare your Molluscs - for Eating!

By Capt. Alex Roth, Jr. (1984?) Aljemasu Enterprises, Tamuning, Guam. 148 pp., illus., paperback $6.75.

Capt. Roth's book is written to equip you to become a gourmet molluscan chef, capable of making the tastiest meal out of just about any of the mollusks you capture.

The book reminds that from the earliest prehistoric times our progenitors ate prodigiously of mollusks and there is little reason why you can't do so with equal gusto. He identifies the world's edible mollusks by name, locale, habitat, and basic methods of capture. That is just the essential start toward their preparation for a gourmet experience. Roth's book goes right on from there to tell you how it is done with over 360 recipes!

There are many, many mollusks you never thought about eating that can properly be called delicacies, as indeed they are in other parts of the world. Then there are those you know commercially and the Roth way can turn them into some real treats. The book will equip you to do the best with what you catch or buy.

Single copies can be had for $6.75 but a club order can save quite a bit. (See our member-advertiser-dealers.)

From: Newsletter of the National Capital Shell Club, Issue No. 80, page 5, Spring 1985.

SPIRALS FROM THE SEA

An Anthropological Look at Shells

by Jane Fearer Safer and Frances McLaughlin Gill. Crown Publishers Inc., New York, 1982. 192 pp., illus., $35.00.

This handsome volume, a result of research done for the American Museum of Natural History's Hall of Mollusks and Mankind (completed in December 1975) is not your usual shell book. It deals with the meanings and uses of shells in different societies; linking shells with status or wealth, belief systems and elements of ritual, and as tools in everyday life. In conjunction with the text, the over 60 color photographs of the shell objects and 45 black and white phographs showing how the objects were used, provide an insight into these so-called primitive societies and an appreciation of the crafts of their artisans.

Some of the photographs are outstanding and continue in the reader's mind long after the book has been set aside. In one black and white photo, an Andaman Island woman is shown feeding her baby using the shell of Nautilus pompilius as a cup. In a color plate, spoons or ladles of a Melo shell glisten like exquisite jewels. In another, fishhooks of pearl shell, utilitarian objects, become works of art.

Three pages of notes on source information, photographic sources, and a large bibliography are given for those interested in further reading. An index is also included.

In the words of the director of the American Museum of Natural History, Thomas D. Nicholson, "Mollusks have literally nourished mankind physically as well as spiritually." This book nourishes the reader by giving us a glimpse at ourselves.

Carole M. Hertz

(Reprinted from Festivus XVII(4):39, April 1985)

TEREBRIDAE (MOLLUSCA: GASTROPODA)

by Umberto Aubry, MD. 1984. Published by the author. 48 pp., 15 color plates. $14.95.

This privately printed work is essentially a color catalog of the species of Terebridae in the private collection of the author. Illustrated are four fossil and nearly two hundred living species, though eight deep-water Philippine specimens are without specific names. Provided are generic and specific designations, with author and date, for each taxon illustrated; size of specimen, locality, depth, and the author's estimate of rarity are included. The color photos are generally of good quality, although some are so small or so dark as to make identification difficult. There is unfortunately no descriptive text to accompany the illustrations. The detailed list of references will be of use to those interested in these marine mollusks, and an index will allow the reader to locate a particular species, especially as there appears to be no reason for the order in which the species are grouped on the plates.

Although acknowledged by the author not to be a scientific study, at present this book is the only popular treatment devoted entirely to this family. Until the projected monograph by Cernohorsky and Bratcher is published, this small color catalog will be available to introduce collectors to these mollusks. However, the collector might deem it desirable to examine the work before making any expenditure.

Walter E. Sage

THE CHITTENANGO SNAIL(S)

In 1976 the New York State Department of Environmental Conservation proposed for endangered status the Ovate Amber Snail - Succinea ovalis chittenangoensis Pilsbry, 1908 - found in Madison County. The snail is described and discussed by Alan Solem in NAUTILUS, Vol. 90, No. 3, pp.107-114, July, 1976, who wrote: "Studies ... suggest that this is a marked genetic mutation of Succinea ovalis Say, 1817, characterized by one shell feature and an apparent specialization in ecology ... Despite intensive collecting efforts in other areas of New York and adjacent states, no additional colonies with the features of chittenangoensis have been discovered." (NYSC NOTES 226.5, November 1976.)

In the fall of 1981 the Newsletter of the American Malacological Union relayed a request from DEC for information on the biology or status of this species, or any input which would facilitate preparation of a recovery plan. (NYSC NOTES 279.3, February 1982.)

Now, in the Long Island Shell Club's paper, "Irradians," 11(8):3, April 1985, we find a reprint from our Long Island newspaper, "Newsday," of March 29, 1985:

> The rare Chittenango snail, believed to live nowhere on Earth except in the vicinity of Chittenango Falls in upstate N.Y. is even more precious than it was thought to be only a year ago, when its population was estimated at between 2,500 and 3,000.
>
> When those numbers were set, researchers supposed that the snail occurred in two forms, or "morphs": one red, the other gray. In the population survey, the gray snails outnumbered the red by at least ten to one.
>
> Further study has found, however, that only the red snail is the original Chittenango ovate amber snail, discovered in 1905 by Henry Pilsbry.
>
> The gray snail, under biochemical analysis has proven to be an entirely different species — and a species completely unknown to science, at that.

A.P.

(We would appreciate being apprised of further details. — Editor)

ON SOME COMMON CREPIDULA

Elaine Hoagland of the Academy of Natural Sciences of Philadelphia has worked for several years with the genus *Crepidula*. In a very detailed paper entitled "Use of Molecular Genetics to Distinguish Species of the Gastropod Genus *Crepidula* (Prosobranchia: Calyptraeidae)" published in *Malacologia*, 1984, 25(2):607-628, she discusses most interesting differences in *Crepidula convexa* and *C. plana* from different geographical zones — differences generally unsuspected by the shell collector. (Here we emphasize the importance of keeping location data with each lot of apparently the same species of shells.) The following notes are from the abstract which precedes the text of the above-named paper:

> Populations of *Crepidula convexa* and *C. plana* were collected in mangroves near Ft. Pierce, Florida. They were found to differ from New England populations in mode of larval development, although this character is not known to vary intraspecifically in the genus. Allozyme studies were conducted to assess the genetic differences between Floridian and northern populations of these taxa. Horizontal starch gel electrophoresis resolved 24 loci for about 50 individuals of each population. Three populations of the Floridian *C. convexa* and two of *C. plana* were compared with three each of supposedly the same species from New England. ...
>
> . . . .
>
> (The resultung) data demonstrate lack of gene exchange between the Floridian and northern populations of both species, especially *C. convexa*. ...
>
> *Crepidula "convexa"* from Florida produces pediveliger young, whereas northern *C. convexa* release metamorphosed, crawling young. *C. "plana"* from Ft. Pierce releases crawling young, whereas northern *C. plana* releases veligers. These differences, coupled with the electrophoretic patterns, call for future anatomical comparisons that will most probably lead to recognition of these taxa as new species.

Now that you have run to your collection to examine your *Crepidula*, the following remarks from page 608 of Dr. Hoagland's paper might be helpful:

> ... *Crepidula convexa* Say ... had been thought to be distributed from Nova Scotia to the Caribbean. Museum collections show divergent shell color patterns: white with brown spots or streaks in populations from Florida and the Caribbean, and purple or brown with red lines in Northern populations. In Virginia and North Carolina, shells of both types have been found, but not in the same immediate locality. One character such as shell color is an insufficient basis for a belief that more than one species exists, especially since the populations are allopatric. *C. convexa* in Florida often lives on species of *Cerithium* with color patterns similar to itself and unlike the more solid, darker color of substrates in New England such as *Littorina littorea*.

dr

LATE NEWS:

AT THE AMERICAN MUSEUM

Identification Day: Once again, the Museum will hold its popular Identification Day. On June 1, visitors can bring in their unknown rocks, shells, fossils, insects, pottery, artifacts, and just about anything else — except for gemstones — to Museum scientists, who will do their best to identify them. The program, which will run from 1:00 to 5:00 p.m. in the Dana Education Wing, is free to all Museum visitors.

Cruise Around Manhattan: On Tuesday, June 4, from 5:30 to 8:30 p.m., geologist Sidney Horenstein will host a three-hour, twilight boat trip around Manhattan to survey the unusual geology of the island and the surrounding Palisades. The Hudson is North America's most southerly fiord, and its geology is unique along the Eastern Seaboard. Cost of the trip is $18 for members of the Museum, $20 for nonmembers. Contact the Education Department for more details.

Cruise into New York Bay: On this three-hour cruise around New York Bay, participants will view forts from the War of 1812, the glacial moraine that is Brooklyn, and learn the origin of the Narrows under the Verrazano Bridge. Sidney Horenstein will lead this unusual tour of the geology, flora, fauna, and history of the Upper Bay area. It will take place on Tuesday, June 11, from 5:30 to 8:30 p.m. Cost is $18 for members of the Museum, $20 for nonmembers; contact the Education Department for details.

From: NATURAL HISTORY 6/85, p. 88
Magazine of the American Museum

THE AMERICAN LITTORAL SOCIETY

has opened and staffed a regional office on Florida's west coast. The director there is Harold Nils Pelta, and his office is located at the Mote Marine Laboratory, City Island, Sarasota, Florida 33577. Florida members (and northerners passing through) are welcome to contact Hal Pelta for information and to get involved. His phone number is (813) 388-3301. And tell your Florida friends to join.

OCT. 5 - 13	American Littoral Society, Florida annual meeting in Sarasota. Tentative schedule, full details to come. On the agenda so far: an underwater film festival, a series of field trips, a scenic river tour, coral reefs study, sailing in Sarasota Bay, film nights at Mote Marine Lab, fossil collecting, a mangrove trip, barrier island workshop, and some snorkeling and seining trips. Plus a fish fry on the beach plus a big dinner and program on Saturday. Official annual meeting on Sunday, October 13.

The COASTAL REPORTER for May 1985
Publication of American Littoral Society

For more information on the American Littoral Society, and how to join, see NEW YORK SHELL CLUB NOTES No. 294, March 1985, page 6.

SHELLING IN SENEGAL

Norm Currin

In the summer of 1976 while at my summer home in Maine, a phone call from Billee Dilworth alerted me to the possibility of a fall shelling trip to Africa. Senegal was the country selected — chosen because of its variety of good shells. Although red tape and slow communications caused many delays in planning, the six of us involved went ahead with our shots, passports, and up-dating of our diving and collecting equipment. Finally, in mid-October, the trip was A-Okayed, and November 15th found Twila Bratcher, Billee Dilworth, Jackie Grundman, Marge and Hugh Bradner, and me, assembled at Los Angeles International Airport for an 8:00 a.m. takeoff on American Airlines to New York.

All of us tried hard to keep our luggage within the allowable forty-four pounds limitation, but the airline scales showed most of us woefully over. Twila, as our spokesman, did a superb job of convincing them that our diving gear was "sports equipment" (despite what their regulations book said) and we were finally permitted to pass. At two dollars for each overweight pound, it was important to all of us to get this ruling (although they warned us that it might be a different story on our return flight). So our luggage was checked through and we were on our way.

At New York's Kennedy Airport we had less than two hours on the ground. During this interval we transferred to PanAm for the trans-atlantic leg of our flight. Shortly after dark we were airborne, flying through the night to make a barely-dawn touchdown at Senegal's international airport at N'Gor. Despite a night with no sleep and a jet lag of eight hours time differential, we were excited at being there and anxious to see what this West African land of blue water, baobab trees, and (we hoped) bountiful seashells had to offer.

Senegal is a small country in the tropic zone, twelve degrees north of the equator. It occupies the southwest corner of West Africa's big bulge. A former French-ruled country, it has had independence since 1960 and appears to have a well-run stable government. The November climate is supposed to be ideal, with the summer rainy season just over and the winter drought just starting. Air temperatures are in the low eighties by day and low seventies by night. Winter sea currents bring relatively cool waters to its shores. It has excellent variety in its seashells, many of which are endemic.

We had reservations at the Hotel Meridien located at the village of N'Gor, eighteen miles from Dakar and only two miles from the airport. A hotel representative was there to meet us and whisk us unchecked through customs and into a limousine for transport to the hotel. Instead of checking in at the huge highrise Meridien, we were by prearrangement taken to the adjacent "le Village" — a cluster of bungalows in a grove of cedars. They were close to the sea but still in the shadow of the mother hotel. It took a bit of insistence on our part to get them to assign us bungalows directly on the water, but finally we were unpacked and settled in the two most seaside of them all — the Bradners in a small one, the rest of us in a large bungalow next door. The grounds were host to countless foot-long lizards and brightly-hued birds. The bay was calm and brilliant blue. Small waves broke lightly over the nearby reefs. We liked it, immediately.

By 10:00 a.m. we were showered, squared away and breakfasted. And then — to bed for some much-needed sleep?? Nay! For the tide was ebbing and the sea was beckoning and, true shellers that we are, none could resist the urge to get out and see what was there. We started in immediately finding things. Good things! Shells none of us had ever taken before. Although no one found any Cypraea this first day, we all took a variety of cones (the most intriguing of which were the striking Conus mercator), Marginella (the bright red or orange Marginella aurantia, brown and white striped monilis, and golden yellow exilis), and a variety of Thais, Murex, Nassarius, Tegula, Nerita, Epitonium, etc. It was good hunting and we were all thrilled to be there, shelling along the coast of the fabulous dark continent.

That afternoon we walked down to the village of N'Gor. We noticed first the grace and beauty of the native Senegalese people. They were tall in stature (even the women averaged close to six feet), graceful in carriage (their custom of toting huge jugs and bundles on their heads — no hands — was undoubtedly responsible for this), and fine of feature (full lips, straight narrow noses, and ebony-black velvet-textured skin). We were in full agreement that these blacks were truly beautiful. We marvelled at their hairdos of tight curls and intricate braids. Both men and women wore flowing robes or "boubous" — in soft tones or rich colors they were equally attractive.

Our impression of the village, which is situated at the very westernmost tip of the continent, were of densely clustered white clay structures, narrow dirt lanes serving as streets, countless children (most of them following us, either from curiosity or to try to sell us seed-pod beads or leather thong sandals), goats and pigs and other livestock roaming freely, ill-smelling stalls where fish and other edibles were vended and, close to the hotel, the shell shop.

We found the shell shop proprietor to be a handsome, well educated oceanographer. He and Brad struck up an immediate friendship because of their allied professions (plus the fact that Brad and Marge both speak French well). Maguette N'Dieye became a friend to all of us and we were later treated to a native fish and rice dinner, hotly spiced, at his home. He was proud to show us the oceanographic studies building which was under construction at the south end of the village. During our two weeks' stay we all made several trips to his shell shop.

That evening a group of native dancers put on a fire dance at the nearby clubhouse. It was a thrilling spectacle and their wild gyrations and fire-spewing antics made us truly realize we were in Africa. Later we had dinner at the hotel's beachside restaurant. The food was good but expensive. It was difficult to order a meal for under ten dollars. An omelette for four dollars seemed in many cases to be the easiest and cheapest way to go. Wine was very high, and hard liquor just about prohibitive in price. Their monetary unit is the African franc, at that time 230 francs to a U.S. dollar.

Our bungalows were more than adequate. They were roomy and well ventilated with large windows opening toward the sea. The fairly modern plumbing was workable, with plenty of hot water. The walls were light yellow plaster. The roofs were thatch. Our roomboy kept the tile floors immaculately clean despite our efforts to cover them with sand, salt, seaweed, and shells. We were advised to keep our quarters well locked whenever we were not around, for many of the young children from the village will watch until there is an opportunity to check for an unsecured door or window. Hotel guards try to keep close watch on all bungalows, but the kids are tricky and will try any ruse to get money or valuables. We were told they are never violent, but just can't resist the urge to take something if they can get away with it. For this reason, whenever we dived we would hire a young man to guard our items left ashore.

Our first night we all retired early. We had, after all, no sleep the night before. And the eight-hour time lag had our systems thoroughly confused. We would sleep for a few hours, then be wide awake for a spell. We did not, however, let this interfere with our shelling, and the next few days of extreme tides found us out over the reefs and sand patches by day, and night diving until the wee hours during the midnight low tides.

Our bungalows were less than a hundred feet from the ocean. We had a gorgeous view of the bay, the ocean, several islands, and the expansive reefs. The remarkable feature about these reefs was the complete lack of coral — not even a gorgonian to be seen. It was all black, hard, heavy rocks, but rocks in such jumbled profusion that there were plenty of turnables for everyone.

The water was clear, and warm enough that an eighth-inch wet suit was adequate except on our last two days when the sea temperature dropped noticeably and it was really quite chilly — perhaps sixty-eight degrees or less. The only real hazard to our collecting was the abundance of sea urchins. Their spines seemed to be much less toxic than others we had encountered elsewhere, but several of us had portions of our anatomies punctured sufficiently to affect our movements for a day or two. I slipped and rammed the calf of my leg into one. For a few days I limped a lot. Billee lost her balance and sat on one. For a few days she stood a lot. For several weeks an occasional spine would work its way to the surface and have to be popped out, but generally speaking they seem to lack the infectious qualities of other urchin spines. During daylight collecting I never saw a moray eel or a stingray, but during night dives they were much in evidence. They were easy to avoid and presented no real problem. Jackie, on one of her night dives, brought up a beautiful Murex osseus gambiensis. Other than that, I believe we found no shells at night which we had not taken during daylight searching. Shells which might be hiding under rocks or in sand by day were up and crawling about by night.

On our first trip to Dakar we took our diving gear and rode the ferry out to the Ile de Goree, three miles offshore. On the boat a young man with a friendly smile walked up to me and asked if I were American. Jim Barry was white, red headed, and obviously American, too. He lived on the island while awaiting acceptance by an African college. He is an artist, making a living by painting batiks — a method of painting on wax-coated textiles — in partnership with a young Senegalese couple. His one-room quarters became our home on Goree, and he proved to be an excellent friend to all of us. We found Goree to be a delightful spot, quaint and picturesque. It was the scene of the filming of "The Guns of Navarone". A fortress guards the entrance to Dakar Harbor at the seaward end. At the other end a circular brick-walled prison sets at the water's edge — the grim internment quarters for captured slaves while they awaited ship to the colonies.

The coast of Goree is rocky and the sea rough, but once you get in and away from the dangerous surge the diving is okay, with the ocean depth ranging from fifteen feet on down. Some of Jim's young friends joined us in our diving. They had no wet suits to wear, but would stay in the water longer than we — until their black skin turned blue from the cold.

Dakar, with its population of over half a million, is the capital of Senegal. The downtown area has modern streets, shops, and buildings. The outlying areas are more like our village of N'Gor. There are large market areas where all kinds of edibles and crafts and materials may be bargained for. And bargaining is a way of life with these people. They invariably quote a first price at least twice as much as they expect to get. It is up to you to argue them down. Everyone speaks French. The natives also speak their native language of Ouolof and they are immensely pleased if you greet them in their native tongue. Our "Salaam malacum" greeting would always bring a wide grin and their "Malacum salaam" response. We learned "Wow" for yes, and "Didit" for no. That seemed to be all we really needed. They were very friendly to us and we much favored riding their crowded buses to taking taxis.

Not a day went by that wasn't principally occupied with shell collecting. In sandy areas we used hand dredges to bring up Nassarius, Marginella, Cancellaria, Terebra, Dentalium, Oliva, and a number of other univalves and bivalves. We probed the rocky areas for Cypraea, finding Cypraea lurida, lurida minima, stercoraria, pyrum, zonaria, and the rare petitiana and sanguinolenta. Billee came up with, for Senegal, the rarest of them all — a Cypraea spurca atlantica! Extremely rare there, this shell is quite common in other localities. Of no special value to Billee, she was able to exchange it with a local collector for a very choice alternate.

Because of the variety of Marginella there, we all found ourselves developing an interest in adding the family Marginellidae to our collections. Brilliant and glossy as Cypraea, they are equally as beautiful and varied in both pattern and coloration. Marginella aurantia and glabella, two very brightly hued species, unfortunately do not retain their blood-red coloration. In just a few days they would fade to reddish-brown — still very attractive but not nearly as striking as when first taken. We found Marginella on rocks, under rocks, on sand and in sand. They cleaned easily after a day in alcohol.

One day we hired a taxi to take us down to a river-mouth village which is known as a fine collecting area for the large and attractive Murex (Phyllonotus) duplex. We timed the eighty-mile trip so that we arrived several hours before low tide. This gave us time to walk the long footbridge over to the Ile de Fadiouth — a cluster of native homes on a sandbar in the middle of the river. Many of the villagers had supplies of shells spread out on the ground for tourists to buy — mostly Murex duplex and several species of

Cymbium. We elected not to buy them, for our plans were to find our own. But we had not reckoned on the business astuteness of the villagers, for no one would give a hint as to where to go to find the living shells. None of the pirogue drivers would take us there. Finally we hired two young men to pole us in their pirogue a mile downstream to the mouth of the river. From there we walked several miles over wide stretches of open beach. It was obviously not Murex territory, although several strays were picked up. We took a variety of other shells, such as Terebra senegalensis, Turritella ungulina, Cymbium glans, Cymbium pepo, Semifusus morio, and several varieties of Natica, Oliva, Marginella, and bivalves. Several hours later, back at the village, we bought our Murex from the natives.

We enjoyed the trip down and back, especially through the forests of baobab trees. The huge gnarled trunks of the baobabs are hollow in the center and for countless years the natives have interred their dead by placing the bodies inside the trees. The spirit then becomes part of the tree. No trees are permitted inside the villages in order to keep the spirits out. This practice has its unsanitary aspects and the government has recently forbidden it, but it is difficult to control and is still done in most of the outlying villages. The fruit of the baobab is sold along the roadsides. We all tried eating it and enjoyed the pithy lime-flavored pulp — until we heard the story of the strange burial rites. Our taxi driver bought some goods along the way and asked if we minded if he dropped them off for his family as we passed by the outskirts of Dakar. He stopped at a small house and delivered half his supplies to an attractive woman and her children, then drove on to a nearby house to unload the remainder. He grinned and explained proudly that both women were his wives. Having an extra wife or two is a mark of social distinction in this polygamous country. Normally the women live together in one home, but unfortunately for our driver his two wives didn't get along. So he had the expense of running two separate households.

Jackie Grundman proved herself to be a person no well-organized expedition should be without. Through her efforts we were treated to a fabulous Thanksgiving banquet, even though we were prepared to let the holiday pass unnoticed. She had a turkey flown in from France, as well as all the trimmings, from cranberry sauce to pumpkin pie. Catered by the staff of a nearby elegant night club restaurant, we even had champagne and entertainment! It was a great feast and we invited some of our friends there to join us in the celebration.

At other times Jackie would whip up a meal for any or all of us, made from her own home-dried supply of vegetables, meats, and fruits. To the dry ingredients she would add water, plus spices or other flavoring, and cook it on her tiny, purse-sized gasoline stove. In a remarkably few minutes — Voila! A full course dinner. And delicious!

Any time she was off on her own, she made friends out of strangers. And they always turned out to be good friends to have. Through one she procured a pair of valuable primitive antique spears and a pair of ancient ebony masks. Through another she was able to buy a Kora — a huge stringed musical instrument which sounds somewhat like a harp. It is constructed from a two-foot diameter gourd over which animal skins are stretched to give tone and resonance to the many strings. At other times the hotel cook was happy to use his huge kettle to cook our largest shells — at Jackie's request.

On one shopping trip she befriended a young man who had just been robbed. He seemed well educated, spoke English, and needed money to wire his mother for financial help. In exchange for his carrying her bundles back to the bungalows, Jackie paid for the telegram. Thus we met "Bob, whose mother owned the major bus line in Liberia and whose uncle was the Liberian president. Bob was in Senegal on vacation and became a daily visitor. We even taught him how to collect shells.

Shortly after we first arrived, a young and extremely attractive French couple appeared on the scene. They were shell collectors who had a corresponding acquaintance with Twila, although they had never met. Jean de Parseval and his charming wife, Sylvie, contacted Twila our first day there and we saw them often during our stay. One evening they had all of us to their home in Thies, near Dakar, for dinner. The most enjoyable evening was climaxed by their giving us a large box of really choice local shells, which we were to divide as we saw fit. The following evening we set up our own shell game to equitably divide them, each of us drawing a number for our turn to select a shell, repeating until all were taken. This shell game took up the entire evening and we had an absolute ball doing it. We all felt we had numerous fine additions to our collections, and we all marvelled at the generosity of the de Parsevals.

Regretfully, as the end of the month drew near, our stay at Senegal had to end. Twilight was descending on our little thatched bungalows as we finished our packing. ... Jules, a local young native who had assisted Marge when she inadvertently trespassed on forbidden territory at a nearby military commando training camp, brought over a huge bowl of poisson bulette for our dinner. We all squatted around the bowl, broke French bread and, native style, dipped in and ate with relish. Then Jim Barry came with African incense and other mementos for each of us. The de Parsevals, bearing bottles of champagne, joined the group. Jean presented each of us with a choice Cypraea petitiana — again a most generous gift. Our Liberian friend, Bob, arrived and stayed with us until we were on the plane. Twila's dressmaker came with some gorgeous boubous for her to try on, for everyone's approval. Jackie's packers were there, and carried off the crates of museum pieces she had amassed. Utter and delightful confusion reigned the entire evening until finally, at midnight, we had to load our luggage and ride to the airport.

At the PanAm desk we faced our greatest challenge — excess weight. We had been warned that the return tax was four dollars for each excess pound. As when we left New York, there was discussion as to the definition of "sports equipment" before the matter was settled.

Finally, at 1:30 a.m., we boarded our plane and headed west for home. Customs in New York was a snap, and shortly before noon we landed in Los Angeles, sleepless but somehow not tired. We were still exhilarated and riding high on the feeling that this trip had, in all ways, for all of us, been the best ever.

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Publication of San Diego Shell Club

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Items and articles for publication in the NOTES should be sent to the Editors.

The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

September, 1985

Dear Members,

Welcome back!

The September meeting will be the 336th meeting of the New York Shell Club. Hard to believe, isn't it? Well, I'm sure for several members it seems like only yesterday when the first gathering of collectors took place.

This year will be my second season as President of the New York Shell Club and I hope it will be as exciting as th last year was for me. All of our members possess certain talents and skills and once again I am asking each of you to volunteer for some activity to keep the club alive and well. We have many projects to look forward to this year, like the Annual Shell Auction and getting the NYSC library in order. We also need new ideas to stimulate our interest. One event I would like to see this year is a social to close out our season. Of course, we will continue to have informative programs regularly. The first program will be "Shelling on Long Island, NY" prepared by our friends of the Long Island Shell Club. I'm sure it will be interesting and inspiring.

I look forward to seeing you at some of our meetings, hearing your ideas and seeing your creativity at work.

Good Shelling,

Mary Anne

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 419, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETINGS: SEPTEMBER 8, 1985, at 2:00 p.m.

"Shelling on Long Island, N.Y."; slide presentation prepared by the Long Island Shell Club

OCTOBER 13, 1985, at 2:00 p.m.

"Everything You've Always Wanted to Know About Volutes But Were Afraid to Ask"; a slide presentation prepared by Jean M. Cate

NOVEMBER 10, 1985, at 2:00 p.m.

"The Life Story of the Tree Snail"; a slide presentation prepared by Fran Hutchings

REMINDER: **AMNH Exhibit, COLLECTOR'S CHOICE: SEA SHELLS OF NATHAN L. HALPERN remains on view until about the end of this month. It is located near the entrance to the Mollusk and Mankind Hall.**

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DOLORES (DEE) S. DUNDEE

We are sorry to report the death on May 7th of Dee Dundee after a battle with cancer. She was in her 58th year of age.

Dr. Dundee, a native of Kansas, was on the staff of Louisiana State University at New Orleans, in the Department of Biological Sciences, since 1958. Her primary interests were with the land snails and slugs, their biology and spread. She worked closely with the Department of Agriculture at the Port of New Orleans in their constant efforts to foil the introduction of unwanted species.

Dee was active in the American Malacological Union and served as president of that association 1972-73.

She is survived by her husband, Professor Harold A. Dundee.

DR

HIGHLIGHTS OF THE MAY MEETING

President Mary Anne Bastek noted that election of officers would be held at the June meeting, and asked for volunteers for candidacy.

Carol Lindsay extended thanks to those who had helped with and attended the club's auction in April. She was then thanked with applause for her many efforts in making it a success.

Mathilde Weingartner displayed a set of the new United States 22¢ postage stamps bearing pictures of shells.

Mary Anne, noting that there would be no formal program presentation at the June meeting, asked members to bring their favorite shells, and perhaps say a few words about them.

The speaker was Naomi Stern, a member of the New York City Sea Gypsies, a SCUBA club. She said that she had become interested in diving as the result of having become a shell collector. She recalled that the first time she was in the ocean was during her honeymoon. Her husband, a Navy man, was transferred to Guam, where she began picking up beach specimens, some of which - Mitras, Cones, Cowries and others - she had on display. On a subsequent move to the Caribbean she began live-collecting, and some of these finds were on display. A growing interest in conservation has dissuaded her from live-collecting, and her present interest is in unusual specimens - for example, shells with coral encrustations. Naomi now works for See & Sea Travel Service, which arranges SCUBA trips. She showed a number of excellent slides made underwater by her employer. In addition to shells, the subjects were fish, feather-duster and Christmas tree worms, sponges, turtles, shrimp, nudibranchs and their egg cases, octopus, squid, lobsters, a moray eel, starfish and sea lions. Aware of a Club tradition, she ended with a sunset photo.

Milton Werner, Recording Sec'y

HIGHLIGHTS OF THE JUNE MEETING

President Mary Anne Bastek announced that since only ten members had signed up for the proposed bus trip to the Delaware Museum, the plan had to be dropped. She will try to arrange a trip later on, using car-pooling.

It was voted to donate, from the auction proceeds, $100 to the American Museum's William E. Old Malacological Fund, and $50 to the Smithsonian's Joseph Rosewater Fellowship Fund.

Mary Anne then re-introduced long-time member Masao Tabakotani. Alex, as he is known, was a regular attender during a previous extended business stay in the United States. He was returned to Japan for a few years, and now is once more assigned to the United States.

For the Nominating Committee, Mathilde Weingartner took the floor for the annual election of officers, and presented the following slate: President, Mary Anne Bastek; Vice President, Carol Lindsay; Treasurer, Theta Lourbacos; Recording Secretary, Milton Werner; Corresponding Secretary, Edna Christensen. By a show of hands, the Secretary was empowered to cast one ballot for the entire slate.

Information for ordering the 1986 edition of the Shell Desk Diary was on the chalkboard.

Theta showed slides made during a trip to Florida in November 1984. The first series showed the heavy damage done to the shoreline and structures north of Miami by a violent storm that same month. Another group consisted of photos of the Port Canaveral scallop dump, showing dump trucks adding to the heap, and scavenging gulls, egrets, and pelicans. Theta mentioned the many shrimp and starfish to be found among the empty shells - victims of a wasteful collecting method. She had on display a selection of shells she had picked from the dump.

Nick Katsaras displayed and described a group of shells, mostly cowries, selected to contrast normal specimens with dwarfs and giants. Milton Werner showed a nearly mature Cypraea cervus and described collecting it with a lucky grope among the rocks under the bridge at the east end of Upper Matacumbe Key. Edna Christensen displayed a handsome, deep-orange Spondylus princeps she had collected in Baja California. Al Scarpetti commented on a large selection of particularly beautiful Conus from his collection.

Milton Werner, Recording Sec'y

BAN ON COLLECTING LIVE QUEEN CONCHS, Strombus gigas

As of Monday, June 17, 1985, it is illegal to remove live queen conchs (also commonly known as Pink Conchs —Ed.) from any Florida waters, according to Lee Schlesinger, Marine Fisheries Commission (MFC) public information officer.

The ruling applies to state waters only, which includes up to three miles offshore in the Atlantic and up to ten miles offshore in the Gulf. The law prohibits possession in state waters, so even if you found the conch in federal waters and were transporting the conch to shore, you could be cited for violating the law according to Schlesinger. State officials are encouraging federal officials to pass the same law for federal waters.

Schlesinger said the law was implemented because queen conchs have been over-harvested both commercially and individually and legislation was needed to protect the species. "Hopefully the conch will replenish itself and harvest can be opened again in four or five years," Schlesinger said.

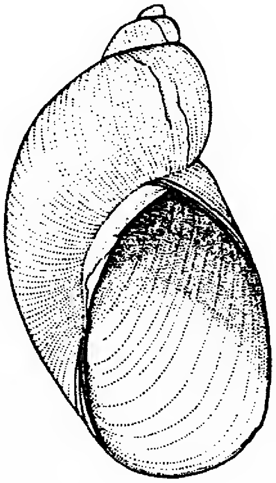
The preceding announcement of the ban on collecting live Strombus gigas appeared in the Central Florida Shell (Club) News, 6(1) July 1985, reprinted from Florida Scuba News, 2(7) July 1985.

The August issue of Underwater USA, 2(4):13, reports that the Florida Marine Fisheries Commission has created a closed season (April 1-June 30) on the taking of bay scallops, i.e. the Calico Scallop, Argopecten gibbus, and instituted an in-season bag limit.

For further information, write to Lee Schlesinger, Information Officer, Florida Marine Fisheries Commission, 2562 Executive Center Circle East, Suite 211, Tallahassee, Florida 32301.

DR

UPDATE ON THE CHITTENANGO SNAILS



Succinea ovalis chittenangoensis Pilsbry, 1908.

22 mm

In our June 1985 issue of NOTES (295.10) we wrote briefly of New York State's endangered Ovate Amber Snail, Succinea ovalis chittenangoensis Pilsbry, 1908, here illustrated with a drawing by Claire Kryczka from Alan Solem's paper, Status of Succinea ovalis chittenangoensis Pilsbry, 1908 in Nautilus 90(3):107-114, July 1976, from which we quoted. We followed with a reprint of a newspaper article of March 1985 which stated that "researchers supposed that the snail occurred in two forms, or "morphs": one red, the other gray. In the population survey, the gray snails outnumbered the red by at least ten to one.

Further study has found, however, that only the red snail is the original Chittenango ovate amber snail" (while) "the gray snail has proven to be an entirely different species — and a species completely unknown to science, at that."

We appreciate Dr. Solem's response, datelined The Field Museum of Natural History, June 4, 1985:

I have just received the June issue of the "New York Shell Club Notes" and hasten to provide the following data on the Chittenango snails. Mr. Al Breisch of the New York State Endangered Species Unit recently sent me some specimens of the "gray snail" for identification. Rather than being an unknown species, they are the European Succinea putris (Linnaeus). North American specimens of this species were initially collected in north central Pennsylvania in 1926, and later (erroneously) described as Succinea pennsylvanica Pilsbry, 1948. Hubricht and Grimm have previously pointed out the identity of these two species. Succinea putris is now known from a number of counties in New York and Pennsylvania. It undoubtedly will spread much further in this region of the country. According to Hubricht, where S. putris occurs, no other succineids can be found.

Thus, I would consider that S. putris may "wipe out" the native form at Chittenango Falls.

Sincerely,
Alan Solem
Curator and Head
Division of Invertebrates

A THREATENED GIANT

Alex Kerstitch
5436 East Bellevue Avenue
Tucson, Arizona 85712

Hollywood has given the Tridacna clam the unwarranted reputation of being a killer which has drowned hapless divers inadvertently trapped between its giant valves. Derived from the Greek 'tridaknos', meaning 'eaten at three bites', Tridacna is more popularly known as the Giant Clam because some specimens can weigh several hundred pounds. The largest species, Tridacna gigas Linnaeus, has been reported to grow to over 4 1/2 feet in length and weigh over 550 pounds.

It is not the unusually large size that make some tridacnids remarkable (some species only reach six inches), but their ability to cultivate their own food. The colorful mantle which lines the scalloped edges of the valves harbors symbiotic algae known as zooxanthellae. The Giant Clam and the Heart Cockle are two shelled mollusks that symbiotically house algae in tissues exposed to sunlight. Tridacnids live in shallow, nutrient-impoverished coral reef waters where strong sunlight is responsible for the photo-synthetic processes of zooxanthellae. The cultivated algae produce large amounts of carbohydrate released into the clam's bloodstream and, in turn, obtain nitrogen, phosphorus and sulfur from the clam's waste material to produce protein. The well developed digestive and filtration systems of tridacnids permit them to obtain ambient phytoplankton and zooplankton. This source of food, however, cannot adequately provide the nutritive requirements for the growth of the large valves.

Under ideal conditions it may take ten years for a giant clam, such as Tridacna gigas, to grow to 18-20 inches and perhaps 100 years to reach maximum size. Unfortunately, commercial Taiwanese have been poaching up to a million Giant Clams a year along the Great Barrier Reef of Australia. By cutting the large adductor muscle to be sold for food, the large valves are left to be picked clean by reef fishes and other marine organisms. Like tombstones, they become mementos in graveyards of empty shells.

According to a survey by Queensland University, there is an estimated population of about 15,000 giant Tridacna gigas per average size reef. Since the Great Barrier Reef is made up of approximately 1140 reefs, the population of clams should be roughly 17 million.

Other parts of the tropical Pacific are experiencing similar overexploitation of Tridacna species. Fortunately, there is currently an attempt at culturing these clams in Micronesia as part of a project funded by the U.S. Sea Grant Program aimed at restoring dwindling populations in various parts of the world.

Literature Cited:

Ehrlich, Paul. Ecoscience Nov./Dec. 1981; Conservatives and Conservation, pp. 148-149.
Cropp, Ben. Skin Diver, January 1982; Clam poaching on the high seas, pp.35, 98-101.
Kerstitch, Alex. Educational Images; Farming the Seas, Spring 1981; Slide Set.

(Reprinted from SHELLS and SEA LIFE 16(5):54-55, May 1984.)

OBSERVATIONS OF CHAMBERED NAUTILUS

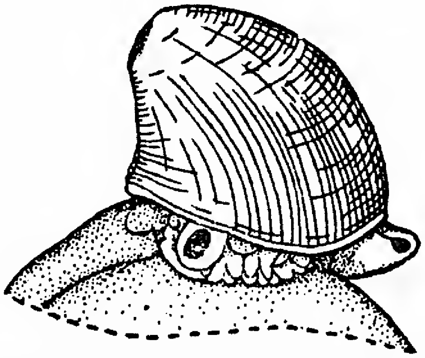
In his article, "The First Known Embryos of the Chambered Nautilus," (Hawaiian Shell News of June 1985, Vol. XXXIII, No. 6, pp. 1, 11), Bruce A. Carlson, Curator of the Waikiki Aquarium in Honolulu, tells of his work in the field and in the aquarium with the Chambered Nautilus — one of the world's living fossils.

As a bit of history he relates that "In the late 1800's, Arthur Willey spent many years in the South Pacific collecting Nautilus and holding them in deep water cages, hoping to be the first to observe the egg and embryo. He did in fact succeed in obtaining eggs but was never able to find a fertile egg.

In the present series of investigations, Nautilus was tagged with sonic transmitters and "We found that Nautilus move great distances, both along the reef face and vertically, day and night.

"The vertical migration is very impressive. In the daytime they are as deep as 1,500 feet where the temperature is a frigid 42° F. At night they move up to a depth of 275 feet and a temperature of 78° F. Using this information we returned to the Waikiki Aquarium and ... using the data obtained in Palau we began in 1982 to keep our Nautilus in water whose temperature fluctuated to simulate their daily migration (pressure changes could not be made). After a few months our Nautilus did indeed begin laying eggs but, as always, they were apparently infertile when opened and examined — usually after less than two months of 'development'.

"Examination was carried out by Dr. John Arnold, a cephalopod embryologist with the University of Hawaii. Dr. Arnold has been associated with us on this project since we found our first Nautilus eggs in 1976. By 1985, we had spent nine years examining hundreds of Nautilus eggs. It is fair to say that our enthusiasm for opening eggs was diminishing. Perhaps that is just what was needed.



Nautilus (embryo). Drawing by Dr. John Arnold, University of Hawaii.

"Our Nautilus continued to produce eggs through the fall and winter of 1984, but neither Dr. Arnold nor I felt any pressing need to examine them. In fact, they remained in the incubator tank untouched for five to six months. Early in March I routinely passed them to John for inspection. Within two hours I heard the exciting news: 'We've got babies!!'

"Out of about 20 eggs, there were four living embryos in various stages of development. The accompanying drawing shows one of the more advanced embryos. Intriguingly, it looks more like a regular snail than a Nautilus.

"The tiny caplike shell is approximately 5mm in diameter and appears to have two chambers inside. The embryo has well developed eyes at this stage, a cluster of tentacle buds, and a long and very active siphon which extends up over the edge of the shell. Beneath the embryo is the large brown yolk.

"Overall, the embryo looks like a tiny snail ready to crawl away, but the orientation is reversed from that of the adult Nautilus.

Whether this has significance in interpreting the evolution of Nautilus from its other molluscan relatives, or whether it is coincidence, remains to be determined.

"It is an axiom of biology that many of the stages during the development of an animal can be similar to those of ancestral forms. The discovery of these embryos is a very significant event. It will answer some of the questions which have waited a hundred years to be answered and many more will undoubtedly be raised. Other egg capsules from the same batch and more which are continually being produced remain in incubation at the Waikiki Aquarium. Techniques using X-rays are now being developed to determine if any of these capsules are also fertile without having to open the eggs.

"Presumably the long time (four to six months) which passed before the eggs were opened explains why we found embryos this time. Judging by the amount of yolk left in the capsule, Dr. Arnold and I estimate that embryonic development of the Nautilus could take up to a year. If that is the case we still have a long time to wait for our first baby Nautilus to hatch in captivity. That will be a very exciting event indeed."

(The above is a condensation of the report in HSN, June 1985.)

S. S. BERRY COLLECTIONS AND LIBRARY DISTRIBUTED

Dr. Paul Allen, executor of Dr. S. Stillman Berry's estate, announces the distribution of Dr. Berry's malacological collections and library. All molluscan collections and materials (exclusive of cephalopods) will be deposited at the Department of Invertebrates, Santa Barbara Museum of Natural History, Santa Barbara, California. All cephalopods and cephalopod-related materials will be deposited in the Division of Molluscs, National Museum of Natural History, Smithsonian Institution. Materials will be available for research purposes pending their organization and the settlement of the estate.

AMU NEWS 16(1):14, April 1985

FABRICATED SEAFOODS

"Imitation crab legs" are among the fabricated seafoods marketed in the United States. The base of these products is surimi, a fish gel developed more than 100 years ago by the Japanese. Surimi is produced from mechanically deboned fish flesh that has been repeatedly washed with chilled water until it is odorless and colorless. The washing also increases the concentration of myofibrillar protein that gives surimi an elastic and chewy texture resembling that of shellfish. Spices, flavorings, and seafood parts are added to surimi, and the resulting product is processed into a variety of food forms.

The Japanese have used surimi extensively to develop fabricated seafoods, and export millions of pounds of surimi-based products to the United States. As a result, the National Marine Fisheries Service has designated funds for development of the U.S. surimi industry. Regionally underutilized species of fishes are being studied for suitability and improvements in product texture and flavor and in machine automation are being worked on.

From: Sea Secrets 28(5) Sept/Oct 1984

REVIEW:

COWRIES OF THE WORLD

by C. M. Burgess. Seacomber Publications, Cape Town, South Africa. 1985. 289+xvi pp., 20 color plates, many color photos. Price $95.00.

This long-awaited volume on one of the most popular families of marine gastropods is one of the finest works on mollusks ever produced. Not merely a popular book on cowrie shells, this book treats the cowrie as a living animal, and the author has provided a firm foundation for future workers wishing to integrate detailed anatomical studies with data on shell morphology.

The interest generated by the publication of Dr. Burgess's The Living Cowries in 1970 had provided a vast store of new information, particularly anatomical data, on cowries, and these facts have been incorporated here, resulting in a largely rewritten and rearranged text with sharp color photos of each of the 202 species recognized as distinct. Dorsal and ventral views of each species are presented; often a lateral view is shown; and clear photos of the living animal of 155 species add greatly to the reader's understanding of the species of the genus Cypraea. There is a full page, and in a number of cases two pages, of text on each species, including the original citation, size, rarity (as detailed on page xi), distinguishing characters of shell and animal, habitat, and a map clearly showing the range of recorded localities. The 20 plates from the earlier book illustrate some of the variations that can occur within a species. Where possible, species are treated in groups showing some similarities, or in regional arrangements as in the case of the South African and Southern Australian cowries.

Careful study of the Contents page, the explanation of text on page xi, the author's introduction, and the section on notes and comments will ensure that the reader will derive maximum benefit from the use of this book. Dr. E. Alison Kay's ten-page chapter "About the Cowries" enhances the value of Dr. Burgess's work and gives the reader much food for thought. Dr. Burgess carefully explains his views on cowrie speciation, emphasizing the importance of anatomical characters in combination with shell characters in the determination of species. The discussion of races and subspecies on page 2, and of variations on page 18 explain why all the names seen in the literature and on dealers' price lists are not afforded specific status.

In addition to the features mentioned above, a glossary, bibliography, index to species names, general index, an alphabetical list of species with page reference, mention of aberrations and anomalies such as sinistral and melanistic cowries, complete the text. Sixteen species described as new since 1970 or not fully treated in The Living Cowries are discussed; nine taxa considered dubious are mentioned and illustrated; another 22 names recently introduced are considered synonyms of valid species. The author comments that many additional new names are in the more recent literature, and it is to be hoped that he will discuss these names in the near future.

The design, layout, and printing of the book are excellent, and the color photos are outstanding. Apart from minor typographical errors and several mistakes in the photographic credits, there are gratifyingly few errors. Only one of these is worth mentioning here — the holotype of Cypraea rabaulensis (Schilder, 1964) was presented by Ray Summers to the American Museum of Natural History, New York, not the Los Angeles County Museum. Worthy projects for a future edition would be the inclusion of all synonyms under the proper species and the compilation of a complete bibliography on the Cypraeidae.

All collectors and students of Cypraea will treasure this volume and, for those who may find the price a bit steep, it is worth mentioning that the price amounts to 31¢ per page, in reality quite a small cost for a book of such quality. This reviewer urges all interested parties to act speedily to secure a copy for themselves — the press run is sure to sell out quickly.

Walter Sage, 14 July 1985

REVIEW:

CRUSTACEANS AND MOLLUSKS TRAWLED OFF SURINAME AND FRENCH GUIANA

by Matsatsune Takeda and Takashi Okutani. Japan Marine Fishery Resource Research Center, Tokyo. 1983. 354 pp., color illustrations, hard cover, no price indicated.

For the purpose of "assessing the promising marine resources and for elucidating [the] interesting fauna occupying the surveyed areas," the Japan Marine Fishery Resource Research Center (JAMARC) conducted a series of trawling operations off Suriname and French Guiana in depths from 10 to 1000 meters from June 1, 1979 to March 31, 1983. This volume describes and illustrates in full color 146 species of crustaceans and 143 mollusks obtained during the 1979 to 1981 trawling operations. Fishes have been covered in a separate volume. This review will discuss the treatment of the shelled mollusks obtained in the surveys.

The mollusk section, written by Dr. Okutani, covers pages 187 - 354. Included are 35 cephalopods, 76 gastropods, and 32 bivalves. Most of the gastropods and bivalves are endemic to the tropical western Atlantic, while the cephalopods have a broader distributional range. Six gastropods and four bivalves were described as new by Dr. Okutani in 1982 and 1983 in Venus (Japanese Journal of Malacology). Omitted here is Sarepta surinamensis, Sareptidae, described by Okutani, 1983, Venus 42(1):17-18, figure 1. This nuculanacean family was not previously recorded from the western Atlantic.

A six-page section discusses molluscan terminology and provides a systematic listing of the 143 mollusks. Provided for each species are the family designation, Japanese name, scientific name, and common name where applicable. A detailed description is given in Japanese; diagnosis and distributional data are given in English, with depth information in the Japanese text. Additional pertinent data are given under "Remarks." Drawings of radulae are presented for 22 gastropods. Height and breadth are listed for gastropods; length, height and breadth for bivalves.

Four minor errors in specific name citations are worth noting: Polystira vibex is incorrectly spelled "vipex"; Vesicomya smithii is spelled "smithi"; the date for Thatcheria edgariana (Dall, 1889) is listed as 1881 (this species is not included in Abbott, 1974, American Seashells); the date for Onustus longleyi (Bartsch, 1931) is listed as 1831 (readers are reminded that Onustus Swainson, 1840 is considered by Ponder, 1983 in his monograph of the Xenophoridae as a subgenus of Xenophora Fischer von Waldheim, 1807).

The specimen figured as Cymatium femorale (Linnaeus, 1758) may be the form described as C. raderi D'Attilio and Myers, 1984 in The Nautilus 98(1):31-36, figs. 7-12. Murex (Chicoreus) sp. appears to be referable to Chicoreus bullisi E. H. Vokes, 1974, Tulane Studies in Geology and Paleontology 11(2):91-94, plate 3, figure 3. The genus Amusium is used for A. lineolaris (Lamarck, 1819), formerly cited as Aequipecten lineolaris. Conus atractus Tomlin, 1937 is used for the species more commonly known as C. austini Rehder and Abbott, 1951. Röckel and Vink, 1982, Hawaiian Shell News 30(2):5, have shown that an earlier name for this species is Conus cancellatus Hwass, 1792. (See also Abbott and Dance, 1982, Compendium of Seashells, p. 270.) A bibliography of 29 references, an index to Japanese names, and an index to scientific and English names complete the molluscan section.

This book is a most valuable addition to the literature on western Atlantic marine mollusks. The numerous typographical errors in the English text are merely a minor irritant. The outstanding color plates and the detailed data provided on these deeper water mollusks make this a volume that must be added to the library of serious students of mollusks.

* * * * *

Since the above review was written, two notes have been published regarding Murex surinamensis Okutani, 1982. Vink (Hawaiian Shell News, September, 1984, p. 9) expresses the opinion that Okutani's taxon may represent a "giant" form of Murex olssoni E. H. Vokes, 1967, and comments that he has three similar specimens in his private collection. Emily Vokes (Shells and Sea Life, November 1984, p. 215) compares Okutani's taxon to M. nigrispinosus Reeve, 1845 from the southwestern Pacific and states, "I seriously doubt that it [M. surinamensis] is a western Atlantic Species."

Clearly, we have not seen the final word on this and other species of western Atlantic Muricidae.

Walter Sage, 30 June 1985

ONSLAUGHT AGAINST EDUCATION
a Book Review of:

GUIDE TO FLORIDA SEASHELLS by Robert Anderson, 56 pages. Winner Enterprises, Florida, 1985. $3.95

This booklet should get first prize for being the worst guide to Florida shells published in the present century. Superficially looking respectable, this pocket-size guide contains 68 common Florida shells. Twelve species are grossly misidentified — the Calico Scallop is called Pecten ziczac, the Apple Murex is identified as the Florida Rock Shell, Thais haemastoma, and the well-known Alphabet Cone is labelled Conus delessertii. Ten old scientific names, not used by experts in 50 years, are employed and sometimes misspelled. Three kinds have wrong illustrations, and 23 of the species that are inadequately described in the text have no accompanying illustrations. All told, there are over 56 misspellings and erroneous facts — an average of one per page. In essence, the buyer receives a book that has only 16 species properly named, described and illustrated.

All books, including those of this reviewer, have some inadvertent errors and typographical aberrations, but this one has misinformation in addition. Where the author states on page 48 that "the egg masses (of the moon snail) are laid on the underside of a glutinous collar-shaped egg case" he is quoting a longtime error that refers to the extraneous egg capsules of the Nassa Mud Snails sometimes attached to this sandy collar. New to scientists is his statement on page 48 that the heavy, plodding Murex spinicostata [sic] (i.e. Phyllonotus fulvescens, the Giant Eastern Murex) "is also a capable swimmer."!

Sometimes a good little beginner's guide can serve as a memory-jogger of names for the advanced shell collector. Not in this case because author names and dates, so essential to serving amateur conchologists, are omitted. To further confuse the beginning conchologists, the common Kitten's Paw is referred to as Plicatula mantelli [sic], an Eocene fossil, on one page, as ramosa on page 23, and correctly on page 38 as gibbosa. The common edible Quahog Clam of Florida is not, as implied, found throughout the world, and is not mercenaria but campechiensis.

The text is replete with such nonsensical statements as "Shells have been used in the trade of material as well as immaterial items" and (for we specialists) "The minute, yet technically recognizable structural differences between the shells of even the most closely allied specific forms, and the wider and distinctly evident divergences that separate the more remotely connected varieties, furnish the basis for their classification by systematic conchologists."

In this case Winner Enterprises has produced, in addition to other (also accurate?) guides to Florida natural history, a loser to education and the hobby of conchology. Unfortunately, this attractive little guide is being widely distributed to the Florida public despite its many major errors. The moral for small press publishers is to produce books written in good English by knowledgeable people or face the consequences of free enterprise and honest reviews.

R. Tucker Abbott

(The above book review by Dr. Abbott is reprinted from the Jacksonville Shell Club's SHELL-O-GRAM 26(4):6, issue of July-August, 1985.)

ANNOUNCEMENTS:

ARCHAEOGASTROPOD BIOLOGY AND THE SYSTEMATICS OF THE GENUS TRICOLIA (TROCHACEA: TRICOLIIDAE) IN THE INDO-WEST-PACIFIC

by Robert Robertson, Curator and Pilsbry Chair of Malacology, ANSP. Monographs of Marine Mollusca, No. 3, 1985. 104 pp., 96 pl., looseleaf. $13.50 from American Malacologists, Inc., P.O. Box 2255, Melbourne, Florida 32902.

Subscribers, students, and serious collectors will want this carefully prepared and clearly written monograph by Dr. Robertson. We reprint below his abstract:

> Tricolia is placed in the monogeneric family Tricoliidae Woodring, 1928, distinct from the Phasianellidae (now another monogeneric family) and the Turbinidae. After a review of some aspects of archaeogastropod biology that are pertinent to systematics, the nine Recent Indo-West-Pacific species of Tricolia

are monographed systematically (including ecology and geographical distributions). The main taxonomic characters used are features of shell morphology, colors and patterns (the latter two are especially prone to vary), and radulae. Data on opercula, jaws, and a few other anatomical characters are also included. Tricolia ios from East Africa is described as a new species. Tricolia variabilis is one of the most variable gastropod species known. Sixteen of its characters are shown to vary geographically, thirteen of them non-concordantly. Both the shells and radulae of T. variabilis are sexually dimorphic.

Extract from Publisher's Release

CATALOGUE OF LATIAXIS AND ITS RELATED GROUPS
Family Coralliophilidae

Published by the Institute of Malacology of Tokyo, 6-36, Midoricho 3 chome, Tanashi City, Tokyo 188, Japan. 24 color plates, 24 B/W plates, Explanation in English. Softbound. Price: US $15.00 plus US $4.00 for postage and registory per copy.

They are one of the well known groups of all molluscs and their delicate and beautiful shells have been recognized and cherished for a long time.

In the course of the studies on the group, Dr. Sadao Kosuge, Institute of Malacology of Tokyo, composed handy illustrations of the group for the collectors.

In this book over two hundreds of species are briefly discussed, with each species described, its distribution and synonymy presented.

Twenty-four color plates and twenty-four black and white plates demonstrate significant variations within a species and available type specimens.

Payment should be made when ordering by means of the International Postal Money order or Cash. Our Giro Account No. Tokyo 1-96622.

Publisher's Release

(The reproduction of Plate 17, black and white, received with the publisher's announcement, is of excellent quality. --Ed.)

DREAMS HAVE WINGS

An Artist's Journey into Magic and Mystery, by Ethelyn Hurd Woodlock

Those of you who know our long-time member Ethelyn Woodlock and her work will be interested to know that she has privately published a book of her paintings. (Note: it is NOT a shell book.)

The book, "Dreams Have Wings," is of 204 pages, 9 1/2 x 12 inches, with 53 paintings in color and 113 illustrations and photographs in black and white. The price is $40.00 plus shipping and handling, from Ethelyn H. Woodlock, 1100 S. Belcher Rd., #737, Largo, Florida 33541.

IN PURSUIT OF THE SCALLOP

Gayle Motes

Have you ever wondered when digging through the mountains of scallops at the dump, how they got there? Recently I had the opportunity to find the answer to that question. My brother, Vic Lloyd, is a commercial fisherman in Jacksonville, Florida. He arranged for my sister-in-law Charlotte and me to make a trip on one of the scallop boats working out of Mayport.

Most of the boats are working boats with a minimum of luxuries, but not the one we went on! The SCOTT-GREGG came equipped with two color TV's, frost-free refrigerator with ice-maker, a full size gas range, and a head with a full-size shower and the hottest water ever. Also, the entire cabin area was air-conditioned. Now that's my idea of roughing it in style!! The electronic equipment on the boat was fantastic. There were monitoring devices of all types, depth finders, radios, tracking LORAN's, a fish scope that showed the scallops on the bottom (in color), etc. It looked like the inside of the space shuttle.

Besides Charlotte and I, on board were the Captain and three crew members. The crew members took wheel watches, keeping an eye out for trouble and monitoring equipment during the ten-hour run to the scallop beds.

We left the dock on Sunday afternoon around 3:00 p.m. and returned on Monday at approximately 4:00 p.m. In between there was a mixture of boredom, excitement, sleeping and eating.

My brother told me that the scallop boats were converted shrimpers and were not designed for the heavy loads on their decks. As a result, many of them have flipped over in heavy seas. And since we were going out in rough weather, he would call on the marine radio occasionally to check on us. So as I laid in a bunk, I kept thinking that the next wave would be THE WAVE, the one that would flip us over like a pancake. It added some excitement to the trip that I could have done without.

On the long trip to the scallop beds we watched TV, played cards, and slept and ate, slept and ate, and ate. Over two hundred dollars of groceries were purchased for one week, which we helped stow away. Because of the hard work, the cook prepares nourishing meals. Our dinner was roast beef, with all the trimmings.

Once we reached the scallop beds the action went from slow to fast forward. Two huge nets were lowered over the sides and then dragged along the bottom. The captain carefully monitored the time and the net weight and then selected the right moment to bring up the nets. The full nets were hoisted over the deck of the boat.

Two men took hold of the ropes attached to the net ends, pulled, and released the scallops, which rained down on the deck like colored hail. The nets were then returned to the water to continue trawling.

During each subsequent trawl, the men spread the shells out on the deck to make room for the next haul. This was not as simple or as easy as it sounds. It is extremely dangerous work. The heavy net can knock a crewman overboard, or when the scallops are piled high on the deck he can slip and slide right off the boat, especially if the seas are rough and the boat is rolling. The night we went out with them, twice we almost had a "MAN OVERBOARD!" - which would mean he would be lost. In the darkness and rough seas, the chances of finding a crew member swept overboard would be almost non-existent.

There was very little time to sort through the shells while they were dredging. The nets were dumped approximately every six minutes. Between hauls there was a lot of activity, and we were kept very busy just staying out of the way, trying to watch the operation, and not make pests of ourselves. There were moments of comedy as we watched the guys in their vinyl coveralls and boots sliding down mountains of scallops trying to keep their balance and navigate from one side of the boat to the other. Quite often they would have scallops or crabs holding on to the cuffs of the overalls. There was a lot of beauty, too. The night sky was wonderful to watch and enjoy.

One of the highlights of the trip for me was watching the porpoises feeding on the flying fish that the boat was flushing from the waters around us.

After about three hours of trawling, we were ready to head in to unload. One of our nets had been damaged in the wheel. Back at the docks, we watched the process of unloading scallops into trucks. They were lifted off the boat by a crane and dropped into an open metal funnel. They then traveled along a conveyer belt, separated from the trash (other shells, fish, crabs, etc.) and into waiting trucks. We were finally able to do some serious collecting. Charlotte took one side of the conveyer belt and I took the other side. We really did well - nothing exceptional, but large quantities of common shells. We collected tulips, whelks, cones, olives, moon snails, baby's ears, small helmets, paper figs, and others. For me the shell of the trip was a beautiful black olive in perfect condition.

We were given a lot of consideration by everyone involved on the trip, both on board and at the dock. They were all polite and helpful. It was a very interesting experience, and I'm glad I had the opportunity to do it. However, I would not recommend it for collecting. It is best to stick to the dumps, and if you can ever make a connection, get on one of the conveyer belts. Remember, whether at the dump or on a conveyer belt, always be polite and courteous so that shellers will always be welcomed.

HAPPY COLLECTING!!!

Reprinted from The Shell-O-Gram 26(1)
published by Jacksonville Shell Club.

[The scallop of the above report is the colorful Calico Scallop, Argopecten gibbus (Linné, 1758). Other shells mentioned as taken in the nets: Tulips = Fasciolaria tulipa (Linne, 1758), Whelks = Busycon spp., Moon Snails = Polinices and/or Natica spp., Baby's Ears = Sinum perspectivum (Say, 1831), Helmets = Cassis spp., Paper Figs = Ficus communis Röding, 1798. The Black Olive is a color variation of Oliva sayana Ravenel, 1834. —Ed.]

COA 1985 — PHILADELPHIA, PENNSYLVANIA

The thirteenth annual convention of the Conchologists of America was held June 22-26 at the Holiday Inn at Independence Mall, Philadelphia. Hosted by eager and efficient members of the Philadelphia Shell Club, this event proved to be one of the best meetings ever attended by this writer. Scheduled events had been well organized and efficiently executed, and everyone attending had high praise for the quality of the activities provided.

Saturday, June 22 saw the arrival of many COA members, and following registration the first series of slide talks was presented, including Hank Foglino on oceanography, Richard Goldberg on exotic land snails, and Dr. Robert Robertson on Bahama marine mollusks. That evening was filled with a welcoming reception and sumptuous buffet, held at the Academy of Natural Sciences and hosted by the Philadelphia Shell Club. After the feast, attendees enjoyed conversation, browsing in the gift shop, and touring the Academy's well known and historic collections.

The excellent slide talks resumed on Sunday, with Bob Lipe on photographing shells, Alta Van Landingham on Egypt and Red Sea shells, Peggy Williams on the smaller mollusks, R. Tucker Abbott and Gary Rosenberg on shell identification, and Gary Rosenberg on operculums. During lunch break, Bess Naide conducted the first of several short walking tours of the historic areas of Philadelphia. The evening saw auctioneer Marty Gill, assisted by David Luchow, enrich both COA coffers and members' collections by the auction of fine and interesting specimen shells.

Monday morning saw the first dealers' bourse in action, with over 25 dealers available to those who wished to add gem specimens to their collections. The quality and variety of shells and shell-related items was outstanding, and all attending had a wonderful opportunity to see and purchase to their hearts' content. The afternoon featured two slide talks: Russ Jensen on shelling in Bermuda and Richard Goldberg narrating "Shelling on Long Island," a presentation crafted by members of the Long Island Shell Club. After the talks, members shared refreshments in honor of the 30th anniversary of the Philadelphia Shell Club, followed by the business meeting and election of officers.

The final slide talks were presented on Tuesday morning: Ruth Abramson on shells on coins and stamps, Virginia Maes on shells close up and inside, and Phil Clover on shelling in West Africa and Senegal. The second dealers' bourse was held in the afternoon, and that evening the banquet was held in the elegant ballroom of the Philadelphia Academy of Music. A multi-course dinner was professionally served and the delicious repast was thoroughly enjoyed by all. A special treat was the entrance of Philadelphia's famous Mummers Band, who entertained us royally and allowed such personalities as Tucker Abbott, Russ Jensen, and Bob Lipe to put their best foot forward. The evening's presentation was a truly fascinating one on pectens and their close relatives, and included a slide talk and a motion picture.

On Wednesday morning the final dealers' bourse was held, followed by a luncheon cruise on the Delaware River and a visit to the special Marc Chagall exhibit at the Philadelphia Museum of Art. After an evening free for members to visit and converse, those wishing were invited to come on Thursday to the Delaware Museum of Natural History and see the exhibits and collections, with Russ Jensen and Dr. Barbara Butler as their hosts. Lunch was scheduled at the famous Winterthur Museum.

This short account cannot begin to recount all the details of this truly special meeting. The Philadelphia Shell Club members were most gracious hosts and ran a most enjoyable convention — one which will long remain in this writer's memory.

I would encourage you to plan to attend the 1986 meeting in Fort Lauderdale, Florida, now scheduled for late June. Further notice will be given as details are finalized, but it is important to begin making your plans NOW to attend the COA's 14th annual convention in Fort Lauderdale. You will surely be glad you did.

Walter Sage, 5 July 1985

AMU 1985 — KINGSTON, RHODE ISLAND

The 51st Annual Meeting of the American Malacological Union was held July 28 - August 2 at the Kingston campus of the University of Rhode Island. This meeting honored the memory of William J. Clench, 1897-1984, founding member of AMU and its fourth president (1935), and also commemorated the 75th anniversary of the host club, the Boston Malacological Club. Arrangements were prepared by President Melbourne Carriker, Robert Bullock, Ed and Gayle Nieburger, Ruth Turner, and Gary Rosenberg. Many additional members helped in many ways; special mention should be made of the efforts of Eileen Jokinen in organizing the symposium on the ecology of freshwater molluscs. Those attending these meetings were unanimous in the opinion that this was an excellently organized and efficiently conducted series.

Sunday, July 28th was the arrival date for most delegates. In addition to registration, the first meetings were held — those of the Executive Council and Council of Systematic Malacologists. The Conservation Committee met later in the week. The first of two poster sessions began this afternoon. The President's Reception, at the University Club, filled the evening hours and gave members the opportunity to meet and talk over the activities of the past year.

Monday began with a special symposium, Perspectives in Malacology, organized and moderated by Mel Carriker, where several junior malacologists discussed their researches. The first session of the symposium on the ecology of freshwater molluscs and the first session of contributed talks on marine mollusks were conducted in the afternoon hours. That evening we again gathered at the University Club, this time to attend the Boston Malacological Club's 75th anniversary party, during which slides and a film were shown in honor of Dr. Clench.

Scheduled programs on Tuesday morning continued with the symposium on the ecology of freshwater molluscs and concurrent sessions on marine mollusks. The afternoon saw the concluding session of the symposium on the ecology of freshwater molluscs. Also presented were the first non-technical talks, including an illustrated lecture on the 1978 Amaco Cadiz oil spill and its effects on molluscs; the Long Island Shell Club's slide talk,"Shelling on Long Island;"

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A limited number of back issues of the NOTES are available, \$1.50 postpaid per copy.

Items and articles for publication in the NOTES should be sent to the Editors.

The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

November, 1985

Dear Members:

I would like to take this opportunity to wish all of you a very happy holiday! Although 1985 is coming to an end, we still have several months of activity left in our Club's calendar.

Since September we have enjoyed two wonderful slide presentations and the Juster's shell collection. Our November meeting was made an exciting experience because of the gracious hospitality extended by Leon and Ruth Juster. After a brief business meeting at the Museum, Ruth and Leon welcomed us to their home for a delightful afternoon. Not only were we given the opportunity to view their beautiful shell and art collections, but were provided with delicious edibles as well. I want to thank you both for the time and hospitality you extended to all of us. This special day will be remembered for a long time.

Looking ahead, our December meeting will include the slide presentation on tree snails which was originally scheduled for November. Unfortunately, I will be unable to attend the December meeting because of a trip to the Virgin Islands. I will, however, make it up by sharing my sailing (and shelling) trip with you as a program in the New Year.

Fred Cannon has offered to share his shell collection with us for the January meeting. Since many of you expressed such pleasure with visiting the Justers, Fred has invited us to his home for socializing in addition to viewing his shells. Fred lives in an easily accesible section of Brooklyn, (see directions on Ad page), so we will go directly to his home. If anyone is interested in travelling together or car pooling, we can discuss it at the December meeting or give me a call.

Finally, at the risk of sounding like a broken record, WE NEED YOU! Perhaps there are members who have travelled recently and would volunteer to share their experiences with us. Do you have the desire to chair the Annual Shell Auction? It will be here before you know it. Any ideas for programs or club activities will be gladly welcomed! I leave you with this New Year's thought: the more members we have participating in Club activities the more interesting the Club will be.

Good Health & Good Shelling in 1986,

MaryAnne

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 419, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETINGS: **Sunday, December 8, 1985, 2 P.M.**

Slide presentation on Tree Snails
prepared by F. Hutchings

Sunday, January 12, 1986, 2 P.M.

Shells from the collection of Fred Cannon

NOTE: MEETING TO BE HELD AT FRED'S HOME. - TRAVEL DIRECTIONS ON PAGE 19

Sunday, February 9, 1986, 2 P.M.

Sailing and Shelling in the Virgin Islands
given by M.A. Bastek and L. Ciaston

On December 8 and February 9, the meeting room will be open at 1:30 P.M. for 'shell clinic', current literature, mini-exhibits, new ideas, conversation, etc.

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NEW LAWS ENACTED IN FLORIDA

The Florida Marine Fisheries Commission has enacted several new laws regulating the removal of several species from Florida waters.

Of particular interest is a law prohibiting the removal of Queen Conchs, Strombus gigas, from state waters. Effective June 18, it is illegal to take or harvest any Queen Conch from the land or waters of the state, or to possess or transport any Queen Conch so taken or harvested. (See: BAN ON COLLECTING LIVE QUEEN CONCHS in NYSC NOTES 296.3, September 1985.)

In addition to the Queen Conch law, state law now prohibits the removal of claws from any egg-bearing stone crab and forbids the use of spears, grains, grabs, hooks or similar devices which can puncture, crush or otherwise injure the crab body.

It is also now illegal to take any ornamental reef fish, including surgeon fish, trumpet fish, angel fish, butterfly fish, porcupine fish, cornet fish, squirrel fish, trunk fish, damsel fish, parrot fish, pipefish, seahorses and puffer fish.

From: THE SHELL-O-GRAM, Jacksonville (FL) Shell Club, 26(5):1, Sept-Oct. '85

TRAVELER ASSISTANCE

Those of our members who travel widely may be interested in the existence of the International Association for Medical Assistance to Travelers (IAMAT). Among other activities, it provides booklets on climates, clothing, sanitation, food, diseases, and all the other variables that can spoil a traveler's enjoyment of unusual places. It also publishes a directory of English-speaking physicians in more than 130 countries.

Further information is available from IAMAT, 736 Center Street, Lewiston, New York 14092.

SEA SECRETS 29(2):10, March-April 1985, publication of International Oceanographic Foundation, Miami, FL 33149.

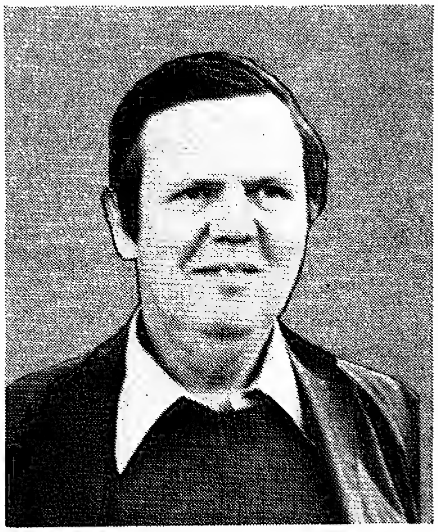
FLORIDA SHOW DATES FOR 1986

January 17-19	Central Florida Shell Show, Orlando
January 17-19	Southwest Florida Shell Show, Fort Myers
January 23-26	Greater Miami Shell Show, Miami
January 24-26	Astronaut Trail Shell Show, Melbourne
January 31 - February 2	Broward County Shell Show, Pompano Beach
February 14-16	Naples Shell Show, Naples
February 15-16	St. Petersburg Shell Show, St. Petersburg
February 21-23	Sarasota Shell Show, Sarasota

Donald Dan in THATCHERIA 20(9):3 published by Chicago Shell Club.

A STATUS REPORT ON THE WILLIAM E. OLD, Jr. MALACOLOGY FUND, AMNH

Shortly after the tragic and unexpected death of Bill Old on December 31, 1982, the American Museum of Natural History established, in recognition of Bill's long and devoted service, the William E. Old, Jr. Malacology Fund in the Department of Invertebrates. Bill had served with distinction and dedication as the collection manager of the Museum's reference collection of Recent mollusks for more than two decades. During Bill's tenure, the size of the collection nearly tripled, from 74,000 to more than 200,000 lots. He was a friend to many collectors and frequently served as judge for shell club shows across the United States. The Fund is now used to support the Department's educational and research programs in malacology, especially the collection, which was Bill's pride and joy.



The Fund at present exceeds $14,000, representing contributions ranging from $5.00 to more than $1,000.00 from nearly 100 sources, including 87 individuals and 11 shell clubs. The Fund is now a permanent part of the Museum's endowment and it receives a prorated portion of the income derived from the Museum's investment portfolio. Thus far, revenue from the Fund has enabled us to purchase gem specimens of Conus cervus Lamarck, 1822 and Cypraea porteri Cate, 1966, two rare species representing families which were of special interest to Bill.

We greatly appreciate the generosity of many of Bill's friends who provided the financial support that enabled the American Museum to establish this perpetual Fund to honor Bill's life and work. Further monetary donations and gifts of specimens from friends and those interested in malacological research will help ensure continued support of the programs in malacology of the American Museum. Tax-deductible contributions will be gratefully acknowledged and should be made payable to the William E. Old, Jr. Malacology Fund and sent to the attention of Dr. William K. Emerson, Department of Invertebrates, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024.

W. K. Emerson

(The accompanying photograph of Bill Old was taken by Richard Goldberg in 1978, at the COA convention. - Ed.)

MALACOLOGICAL REVIEW

is a journal devoted to the dissemination of information on molluscs. It publishes review articles on various aspects of malacology, as well as original experimental and descriptive papers, abstracts of symposia, information on current publications, lists of contents and addresses of contributing authors of domestic and foreign malacological journals and of museum publications. First published in 1968, all back issues are still available as are three supplements. Current yearly subscription: U.S.A. institutions $27, foreign institutions $30; individuals in the U.S.A. $15, private subscribers in any other country US$17.

For further information and to order, write to Malacological Review at the appropriate address. In the U.S.A.: P.O. Box 637, Niwot, Colorado 80544. In Australia: c/o Australian Museum, Attention: Phillip Colman, Sydney, N.S.W. 2000, Australia.

From Publisher's Release

REVIEW:

ARCHAEOGASTROPOD BIOLOGY AND THE SYSTEMATICS OF THE GENUS *TRICOLIA* (TROCHACEA: TRICOLIIDAE) IN THE INDO-WEST-PACIFIC

by Robert Robertson. Monographs of Marine Mollusca No. 3, American Malacologists, inc., 1985. 104 pp., 96 plates. Price: $13.50.

This comprehensive monograph on *Tricolia* in the Indo-West-Pacific is a most excellent example of the study of variability within a species and genus.

First, the genus *Tricolia* is separated from Phasianellidae and placed in its own family, Tricoliidae; in *Tricolia* the presence of an umbilicus or umbilical chink, the presence of fluorescing porphyrins in the shell, and the lack of spiral "capillary" lines help to distinguish it from *Phasianella*.

Nine species of *Tricolia* are recognized in the Indo-West-Pacific; species occurring in Japan (*tristis*), Australia (*gabiniana*, *rosea*, *tomlini*), the southern Indian Ocean (*indica*, *munieri*) and the Indo-Pacific (*fordiana*, *variabilis*) are included but South African species are excluded. *T. ios* from East Africa is described as new.

The author begins by discussing elements of archaeogastropod biology that pertain to systematics, covering the importance of shells, opercula, first shell whorl and operculum nucleus diameters, radulae, jaws, anatomy, familial relationships, eggs, larvae, larval and postlarval ecology, diet and the effect of diet on archaeogastropod shells. This discussion is the background for understanding the variation shown by species of *Tricolia*, in particular *T. variabilis* (Pease, 1861), which ranges through most of the Indo-Pacific and varies extensively throughout its range. Both the shell and radula of *T. variabilis* is shown to be sexually dimorphic, the first case of sexual dimorphism in an archaeogastropod. Robertson's study of this species is the most clearly stated example of such variation in mollusks known to this reviewer and should be studied thoroughly by anyone wishing to describe a species that is thought to be new to science.

The systematic treatment of species covers the following areas: range, chief distinguishing characters, shell description, measurements, operculum, anatomy, radula, relationships, geographic variation, habitat, abundance, synonymy, types, etymology, locality records, and range map. Fourteen pages of references and selected bibliography show the extent of the labor that has gone into this volume. The text is clearly written, well illustrated, and well produced.

The author can be proud of his contribution to malacology, and the reader can be assured that this study is one of the most comprehensive available to date. The text merits several readings over a period of time in order that all the data is retrieved. This monograph is a most important addition to malacological literature and at the very reasonable cost should be on the bookshelf of every student of malacology.

(Order from American Malacologists, Inc., P.O. Box 2255, Melbourne, Florida 32902. $13.50 postpaid.)

Walter E. Sage

REVIEW:

THE FRESHWATER SNAILS OF FLORIDA
A Manual for Identification.

by Fred G. Thompson (March 1985). University of Florida Press, Gainesville, Florida. 94+x pp., 193 text figures. Price: $19.50.

Malacologists, aquatic biologists, and shell collectors interested in Floridiana will find this work an unprecedented and comprehensive treatment of a fauna that is both familiar and elusive. Dr. Thompson employs the "key" technique to present 88 species and subspecies of aquatic snails. Each is clearly illustrated — photographs for some of the larger shells and line drawings for the others, especially the smaller species. Opercula, radulae, and anatomic details of the male reproductive system are also depicted wherever appropriate for the determination of species or of genera. The author has managed to preserve the phylogenetic order of the taxa presented — no small task when applying an artificial "key". Succinct discussions of family and generic units lend insight to the systematics and zoogeography of these groups. In most cases, excepting the little snails of the family Hydrobiidae, the illustrations of shells alone will suffice for identification.

Introduced species (about a half-dozen), endemic species, and species with limited distribution are clearly acknowledged. Ranges, habits, habitats, and salients of species recognition are discussed frequently. A medium-sized but very current and relevant bibliography follows the main text. There are separate indices for scientific as well as the newly-coined official vernacular names employed. Authors of the former are acknowledged without publication dates. There is a two-page presentation dealing with the preparation of specimens for anatomic examination (essential for Hydrobiid identification) which includes helpful tips on relaxation, fixation and preservation of live-collected material.

This manual has been put to the test and served the reviewer well. In the few cases of stalemate and/or ambiguity, frustrations are eased by reference to the author's caveats on taxonomic uncertainties in some groups (e.g. Physidae, Campeloma, and Pleuroceridae). Several nomenclatural and a few taxonomic changes are embodied in this work, and some bear on our local fauna (see following). This publication will prove useful to any collector who has more than a passing fancy with the freshwater mollusks of the Southeast, but he may have to avail himself of a library copy as the tariff is a discouragement — the only aspect of this work that isn't most welcome.

Harry G. Lee
In THE SHELL-O-GRAM, 26(4):3, J-A 1985
Pub. by Jacksonville (FL) Shell Club.

NOMENCLATURAL CHANGES IN THE N.E. FLORIDA CHECKLIST OF FRESHWATER SNAILS

Based on Dr. Thompson's manual (reviewed above), we should note the following corrections affecting our twenty-one recorded species of aquatic snails.

1. Marisa becomes Marissa cornuarietis (Linné, 1758)
2. Oxytrema becomes Elimia floridensis (Reeve, 1860)
3. Physa heterostropha becomes Physella hendersoni (Clench, 1925)
4. Planorbula wheatleyi becomes P. armigera wheatleyi (Lea, 1858)
5. Menetus alabamensis avus becomes Micromenetus dilatatus avus (Pilsbry, 1905)
6. Ferrissia fragilis (Haldeman, 1841) becomes F. hendersoni (Walker, 1980)

Harry G. Lee
In THE SHELL-O-GRAM, 26(4):3

CITTARIUM PICA IN MARICULTURE

The Smithsonian's Marine Systems Laboratory has developed techniques for producing mass quantities of coral reef algal turf on artificial substrates and is now well into a second development phase. It is the attempt, with Agency for International Development support, to use this algal product as fodder for marine animals in mariculture.

The first large organism used was the grazing crab, Mithrax spinosissimus (Lamarck), the Spiny Spider Crab, for which a mariculture process has now been developed. Chosen as a second candidate was the relatively large snail, Cittarium pica (Linné, 1758), the West Indian Top Shell (In earlier publications called Livona pica. -Ed.) which is regarded by many, or most Caribbean folk as a great delicacy. It is an intertidal grazer. A disadvantage is that the animal is one with external fertilization, but even so enough progress has already been made to permit belief that it can be brought to full mariculture within the next six months.

Dr. Walter A. Adey leads the project and provides us this fresh detail — with the provision that it be clearly identified as tentative since the project is at a midstage during which new experiences come daily.

With Cittarium pica, spawning is directly related to lunar and tidal effects. In situ, the animals were found to release sperm a few days before the new moon during spring tides. A transect study in Gibbs Cay on Grand Turk Island, British West Indies, showed that temperatures, salinity and pH remained fairly steady and thus are not likely to have a significant influence on release of gametes. Field collection of turf alga within the transect some three to six weeks after the new moon revealed many microscopic Cittarium pica on filamentous alga and macrophyte blades.

Further experimental studies on the Research Vessel Marsys Resolute at Grand Turk — to see if the lunar/tidal factors controlling spawning could be induced in a mariculture situation — saw C. pica subjected to a variety of controlled (simulated) tide levels through several monthly cycles, with periodic examinations for spawning.

Eventually, over seven months, it was found that spawning occurs rather precisely 2 to 5 days after the new moon; that spawning can be greatly increased by simulating flooded tide pool conditions; and that the majority of animals in this simulation release eggs synchronously.

Preliminary embryological studies that Dr. Adey reports are detailed and precise. In brief, they show that about 10 hours after fertilization the animal becomes a free-swimming gastrula and remains in this planktonic stage until the 22nd hour when the body mass concentrates toward one side of the membrane to leave an "empty space" that soon develops into the animal's shell. The animal then swims actively until the 28th hour when the mantle coils up on one end to form the so-called "veliger" of mollusks. A foot then starts to develop and the animal swims furiously for about 6 hours, then settles to develop its benthic characteristics — as a growing mollusc.

After the successive and successful spawning and hatching sequences, a variety of larval support systems have been tried in the attempt to produce a crop for mariculture. Generally the losses have been large and to date the hatches have remained viable for only three to six weeks, apparently due to bacterial or nematodal contamination. It is felt that physical methods will eventually be successful, however.

The most promising approaches include raising the animals on a pure culture of a local phyto-flagellate — in a sandpit in full sunlight. Experiments using penicillin G to control bacteria are also being undertaken.

On the grow-out, the current endeavor is to develop a system that will maximize algal turf growth and at the same time be suitable for raising the animals. Inexpensive raft-cages have been under test for about ten months with many _Cittarium pica_ on the algae and the growth data suggest a potential harvest time of one to two years, depending on the market size wanted. Studies continue at the Grand Turk Laboratory aiming to bring _C. pica_ to full mariculture this year — and we look forward to a later update as this happens.

Reprinted from the newsletter of the
National Capital Shell Club, No. 80,
p. 11, Spring 1985. J. C. Hayes, Ed.

EDITOR'S NOTE: For a report on the mariculture of _Trochus niloticus_ Linné (the Pacific "cousin" of _Cittarium pica_), see: A BREAKTHROUGH IN MARICULTURE PROMISES TO BRING BACK TROCHIDS in NYSC NOTES 272.3-4. May 1981, by Jerry Heslinga, who reports on the work of biologists at the Micronesian Mariculture Demonstration Center in Palau. He writes that since 1979 "we have made exciting progress that should permit trochus 'farming' to become a reality." They have bred the trochid and raised the young "up to a diameter of about one centimeter, which we expect is an appropriate seed size for restocking depleted reef areas. The process of rearing trochus seed from eggs takes about four months. Once released, the seed should grow to a harvestable size of three inches in about two years." This is the minimum legal size for taking. _T. niloticus_ will grow to five inches. Wagner and Abbott's STANDARD CATALOG, 1978, records a specimen of five and a quarter inches.

dr

CONFERENCE ON AQUACULTURE

January 19-23, 1986 — AQUACULTURE RENO '86, Reno, Nevada. Information: Aquaculture Reno '86, P.O. Box 34123, Little Rock, Arkansas 72203-4123, telephone (501) 376-7883.

Sea Technology 26(9):73

The following article by Professor Akella N. Sastry is reproduced from the magazine MARITIMES 29(2):10-12, May 1985. MARITIMES is published quarterly by The Graduate School of Oceanography, The University of Rhode Island, Kingston, Rhode Island 02881.

Pelagic Larvae: An Evolutionary Compromise

Akella N. Sastry, professor of oceanography

In the oceans there are more than 140,000 species of bottom-dwelling (benthic) animals living on or within rocks, sand, mud, or plants and animals. All the major invertebrate phyla are represented at the bottom of the sea. These benthic marine invertebrates exhibit a wide variety of life histories. They vary in body size and form, life-span and generation time, and life styles as they have adapted to life on the sea bottom. The most familiar among these animals are the worms, snails, clams, oysters, barnacles, crabs, sea urchins, sea cucumbers, and sea stars which one finds on the intertidal rocks, mud flats, and marshes of the coastal zone. But in fact benthic invertebrates are found in all regions, depths, and environments of the oceans.

The life history and reproductive strategies of the benthic marine invertebrates help to determine their ecology and their evolution in the sea. One important aspect of their reproductive strategy is their mode of development. Benthic marine invertebrates show developmental patterns in a range of extremes: from free-swimming planktonic larvae to juveniles completely developed within the egg before being released. The floating (pelagic) larval stage is considered a "primitive condition," and can be traced back 600 million years to the first appearance of the invertebrates in the fossil record. As a rule, in the species with a pelagic larva, the females produce an enormous number of eggs, while in the species with completely developed juveniles, large eggs are produced but relatively few per female.

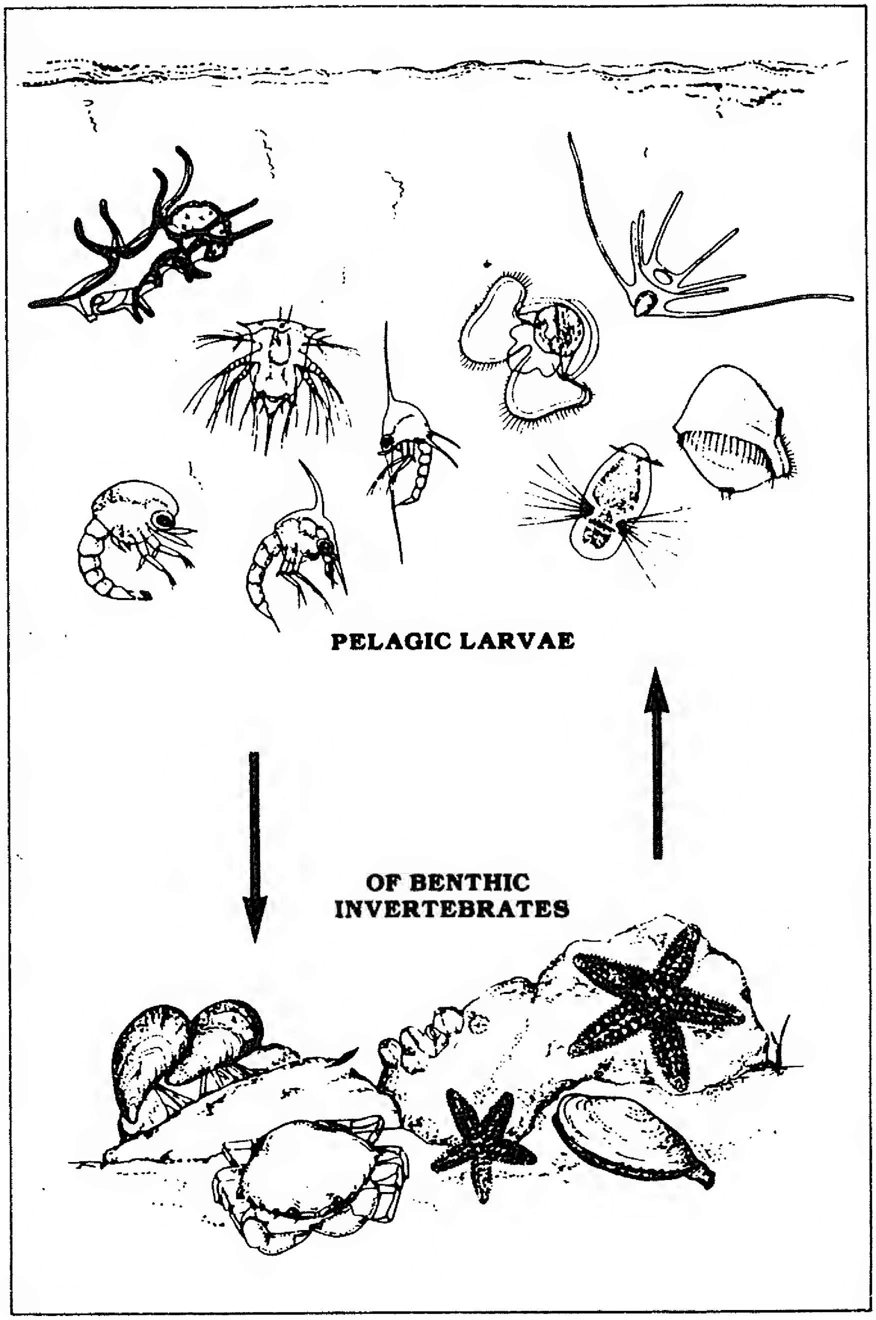
In the modern seas, the distribution of developmental patterns in benthic invertebrates is not random; they may be correlated with factors such as latitude, water depth, ecology, and history of the individual species. About 80 percent of the benthic marine invertebrates living in the modern oceans develop with a pelagic larva, and this mode of development is most common among tropical shallow-water species. In the polar regions very few species have a pelagic larva, and direct development and brooding is common. A trend away from planktonic larval development follows a geographic transect from the intertidal regions to the abyssal plain. In the deep sea, direct development and brood protection predominate, but there is recent evidence for a brief pelagic larval stage in some gastropods and bivalve molluscs, and some of the invertebrates found in the recently discovered deep-sea hydrothermal vent communities develop with a pelagic larva.

We do not know what factors determine a particular developmental pattern, why trends in these patterns occur, or what significance these patterns have for the ecology, biogeography, and evolution in the sea. Recently, however, paleobiologists have been considering the effect that developmental patterns have had on the processes that gave rise to biogeographical and evolutionary patterns in the past, and they are testing hypotheses on the origin and development of the patterns in the modern seas.

We can speculate on the role of pelagic larvae in the life cycles of benthic invertebrates. Development with a pelagic larva is an evolutionary compromise between the risks of survival in plankton and the benefits of wide dispersal. For a floating organism there is risk of predation as well as dispersal away from suitable settlement areas or into areas with little or no suitable food. There are no reliable estimates of larval mortalities in plankton, but it is generally assumed to be as high as 99 percent. This high larval mortality is counterbalanced by the production of a large number of eggs (larvae) per female. For example, an oyster produces about 70 million eggs (larvae) per female in one spawning. Why is such a large amount of reproductive effort wasted by the benthic invertebrates to the benefit of plankton predators?

The answer seems to lie in the advantages of dispersal of one generation because it enhances the long-term species survival. Pelagic larvae, like seeds of plants, have the potential for colonizing varied microhabitats and environments over a wide geographical area, and this dispersal makes exchange of genes between spatially separated populations possible, maintaining variability and adaptability for long-term species survival. With this strategy, the chances for extinction of a species tied to one habitat and subject to climatic disturbances are reduced because the area may be colonized and recolonized by larvae of other populations. There is some evidence that species with a planktonic larva are geologically longer-lived than species with other modes of development and limited dispersal capabilities. The rates of genetic divergence and rates of extinction are factors determining the number of species found in a benthic community.

While pelagic larval development is useful for long-term species survival, this mode of development can result in fluctuations in adult population size from one year to another, and from one place to another, and this interests ecologists. Distribution of planktonic larvae in time and space and their success in replenishing the species can influence the dynamics of populations and communities on the sea bottom. In spite of the uncertainties for the species inherent in larval dispersal, the populations of benthic invertebrates continue to be represented in an area from one year to another. How do the larvae dispersed by water currents restock the benthic populations?



The mechanisms of larval dispersal and restocking of the benthic invertebrate populations can now be studied in the laboratory. We can now routinely culture the larvae of a variety of benthic invertebrates and thus can determine their environmental and physiological requirements and their behavioral responses to variables in the water column. Requirements of the larvae for development and growth and their responses to light, gravity, and hydrostatic pressure are documented for a number of species. Field studies on larval distribution and abundance in time and space along with detailed descriptions of the water circulation are providing an understanding of the dispersal of larvae and their return for restocking the populations. And in the field and laboratory the interaction between larvae and the substrate on which they will settle and metamorphose are being examined.

Larvae are generally more sensitive and less tolerant of varied environments for development and growth than adults. The developing larvae can perceive light and gravity for directional orientation, and they react to changes in the hydrostatic pressure by swimming vertically. The responsiveness of the larvae changes with development; those in the early stages rise up to the surface and remain in the surface layers of the water column and those in the more advanced stages maintain a deeper distribution. Thus, the early stages of the larvae are dispersed away from a source area by the surface currents, and then in the advanced stages they are returned to the vicinity of adult populations by the subsurface currents. Larval behavior and water circulation are basic to the distribution and abundance of larvae and to restocking of the populations of all the benthic invertebrates.

Locating a suitable substratum before metamorphosis into a juvenile stage can be a formidable task even for the larvae returning to the general vicinity of the adult populations. This problem is particularly acute for species with specific habitat requirements such as barnacles, which thrive in the intertidal zone. Experimental studies have shown that larvae that are ready for metamorphosis into juveniles are capable of recognizing the physical and biological cues of a suitable substratum. Specific chemical attractants in the substrate have been demonstrated for such diverse animals as worms, oysters, and barnacles. Most species of benthic invertebrates with a dispersal stage seem to exhibit some ability to select their adult location.

As we learn more about pelagic larval development, we are able to ask more sophisticated questions concerning the ecology, biogeography, and evolution of the benthic marine organisms. Techniques of cultivating larvae are proving a valuable research tool for studies in genetics, genetic engineering, biochemistry, physiology, behavior, and ecology of marine organisms. Cultivation is also proving valuable for seed-stock production of some economically important shellfish and for determining water quality.

KIRK ANDERS

The shelling world was saddened by the news that Kirk Anders of Ft. Lauderdale, Florida, died on October 1st, 1985, after a relatively short illness. Kirk was known to many hundreds of conchologists, both private and professional, as the leading shelling tour master in the Americas. He was responsible for many important field discoveries among the marine mollusks, and gave many pleasurable hours of assistance to amateurs wanting to observe and collect shells.

Kirk was born in Seattle, Washington, on January 26, 1945, and grew up in Florida. After obtaining his B.A. from the University of South Florida he taught science in a local high school, and then founded Shells of the Seas, Inc., and later the Kirk Anders Travel Company. He combined his love of travel, people, shells and teaching into a thriving shell touring business which took him and his friends to most of the famous shelling areas of the world, from Central America to West Africa and from the West Indies to Australia and Egypt. The tours are being continued by his associate and protege, Pete Bright.

Kirk was a good communicator, as his many satisfied tour participants can testify. He was a co-founder and second president of the Conchologists of America (COA), and was president of the flourishing Broward Shell Club of Florida in 1971-72. For a brief period he issued an excellent popular magazine called The Shell Collector. His private collection consisted of over 10,000 species of worldwide mollusks. Kirk shared his knowledge and his shell specimens with everyone who was fortunate to have known him. His gentle nature, his warming sense of humor and his helpful hand will be remembered by many.

At his own request, Kirk was cremated and his ashes scattered in the eternal waters of the Gulf Stream off Florida. Those of his friends who wish to express their appreciation of Kirk's many kindnesses may make a contribution to the scholarship or educational funds of either the Conchologists of America (c/o COA treasurer, Walter E. Sage III, Department of Invertebrates - Mollusks, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024) or his Broward Shell Club (P.O. Box 10146, Pompano Beach, FL 33061). These tax-deductible remembrances would keep Kirk's traditions and goals alive for many years to come.

R. Tucker Abbott, Melbourne, FL

MARIO E. D'AMICO

We regret to announce the sudden death on October 6th of Mario E. D'Amico of Bayshore, Long Island. He was 66 years of age and retired from his work as a construction electrician.

Mario joined the New York Shell Club in 1971 and was an animated and interested participant in club activities until recent years. His collecting was of worldwide shells — land and marine.

Our deepest sympathy is extended to his wife and children.

dr

REVIEW:

ILLUSTRATED CATALOGUE OF LATIAXIS AND ITS RELATED GROUPS, FAMILY CORALLIOPHILIDAE

by Sadao Kosuge & Masaji Suzuki. Institute of Malacology of Tokyo Special Publication No. 1, 1985. 83 pp., 24 color plates, 26 b/w plates. $20.00.

Species of Latiaxis and related genera are among the most beautiful mollusks sought after by collectors. Many new forms have been named in recent years, and until now there has been no publication that has attempted to illustrate all the living species of this fascinating family Coralliophilidae. With this volume Kosuge and Suzuki have presented collectors with a photographic guide to these species. Over 200 species recognized by the authors as valid are illustrated, placed in appropriate genera, and briefly discussed. Each species is listed with author, date of publication, and bibliographic reference. Geographic distribution, synonymy, and a few sentences describing shell characters accompany references to the appropriate plates. These excellent illustrations are the heart of this volume and alone are worth the price of the book. Many type specimens are figured and, in many cases, several specimens of a species are figured to indicate the variability of a species. It is good to see that the authors have included the lesser known genera, such as Magilus, Emozamia, and Rhizochilus.

Text is in both English and Japanese, while the plate captions give Latin names, page numbers for both the English and Japanese text, and the shell height for each specimen pictured. There is an index to species names, and lists of fossil species, species which have been transferred to other families, and nomina nuda. There are a number of name changes, covering species names and generic placements, which will make it necessary for collectors to compare their specimens very carefully with the text and plates.

The fine quality of this work makes it a fitting prodrome to the detailed monograph in preparation by the senior author. It is expected that his monograph will present a full bibliography and synonymy for each species, and should give a more complete description for each taxon. The present guide, with its wealth of fine illustrations, is just what the collector ordered, and should be added to the collector's library without delay.

Walter E. Sage

[See NYSC NOTES 296.12 (September 1985) for complete address and instructions for ordering. — Ed.]

THE NAUTILUS CENTENNIAL

The malacological publication THE NAUTILUS had its beginnings in Philadelphia on July 1, 1886. That means we shall be celebrating our 100th anniversary next year, in 1986. We began as THE CONCHOLOGIST'S EXCHANGE, with W. D. Averell as editor. When Henry A. Pilsbry took over as the chief editor in 1889, the name was changed at the third volume to THE NAUTILUS. Since then, in the span of 96 years, there have been only three chief editors — Henry A. Pilsbry, H. Burrington Baker and myself.

It is time for an editorial. Its purpose is to invite our friends and subscribers, both professional malacologists and private amateur collectors, to participate in our celebration of 100 years of service to the malacological community. We will briefly review the history of the journal, but our main theme will be a memorial tribute to the late William J. Clench and to his former student, the late Joseph Rosewater. The 100th volume will largely consist of scientific articles on mollusks, many by Bill Clench's students, that acknowledge his help or that may name a new taxon in his honor. Additionally, we hope to do the same for Joe Rosewater. Personal reminiscences about either malacologist will be most welcome.

Although THE NAUTILUS is independent of any university or museum, it has existed only because of the support from individual malacologists and private collectors. During my 27 years as an editor, I have been most appreciative of this support, and I hope that the next editor, whoever he or she may be, will carry on in the same cooperative spirit.

An editorial by R. Tucker Abbott in
THE NAUTILUS Vol. 99, Nos. 2 and 3.

[Subscription fees to THE NAUTILUS for 1986 (Volume 100): $15.00 for an individual, $20.00 for an institution. Foreign subscribers should add $2.00 postage. Write to THE NAUTILUS, P.O. Box 2255, Melbourne, Florida 32902-2255.]

Recommended reading:

THE PEARL

Article and photographs by Fred Ward. National Geographic Magazine 168(2):192-223, August 1985.

Thirty-one pages of excellent photographs and interesting text includes history and art, the pearl's creation, culture and value in commerce, plus variables in the present-day culture industry that should be known by any prospective buyer.

Single issue $1.90 from National Geographic Society , 17th and M Streets N.W., Washington, D.C. 20036.

ANTIQUARIAN BOOKS TO BE AUCTIONED

We thank Dr. and Mrs. Jerome Schweitzer for advising us of the forthcoming auction of their collection of rare books on Mollusca. At the time of writing the exact date of the sale had not yet been set, but it is planned for the spring at Swann Galleries in New York City.

Accompanying the announcement was a listing (alphabetical by author) of 74 famous works, of which 19 consisted of more than one volume, and 6 more had available two copies each. The list of authors and their works is too long to reproduce here, but among the authors are: Agassiz, Bonanni (Recreato), Born, Burrow, Chenu (Histoire Naturelle), Cuvier, DaCosta, DeKay, Gould, Lister, Martyn (Universal Conchologist), Pilsbry, Reeve (Conchologia Iconica), Rumphus, Say, Sowerby, Tryon, Turton, Wood, and Woodward (Manual of the Mollusca). These should give you a good idea of the quality of the literature to be offered.

A letter from Swann Galleries accompanied the list of publications and invites: "Members of the club who are interested can write or phone for our Winter/Spring schedule, which should be available by the end of November." ... "Should you have any questions, please feel free to contact me or Mr. George Lowry." The letter was signed by Karen D. Wetter, Swann Galleries Inc., 104 East 25th Street, New York, NY 10010. Telephone (212) 254-4710. Cable: Swannsales.

dr

* * * *

Old-timers in the New York Shell Club will remember the Schweitzers and their films of undersea life. Our NOTES of April 1960 reports on the showing at a recent club meeting of "their film made in Micronesia, of the people there and their way of life including a complete demonstration of the ancient practice of the use of betel nut.

"The Schweitzers were assisting the Bishop Museum in Hawaii in the study of Teredo, and doing research on the source of life in the sea by collecting and photographing the minute animals and plants of the plankton.

"They worked in depths of from 10 to 30 feet, and made a practice of taking a daily walk on the bottom of the ocean — a complex wonderland. Pictures: anemone rejecting stone, accepting snail; a Conus with proboscis extended; Cypraea with egg mass; nudibranchs, sea worms, commensalism; black coral; blue starfish; lavender sea fans et cetera, et cetera."

dr

DENTIFRICE — A HUNDRED YEARS AGO

No. 1299 in DICK'S ENCYCLOPEDIA OF PRACTICAL RECEIPTS (sic) & PROCESSES (or How They Did It in the 1870's) by William B. Dick. A re-issue by Funk & Wagnalls. Grosvenor's Tooth Powder:

Take of red coral, 6 ounces; prepared oyster shells, 5 ounces; orris root, 1 ounce; oil of rhodium, 4 or 5 drops: mix. This is the original formula. Equal parts of prepared shells, rose-pink, and cuttlefish bone, are now generally substituted for the coral. ... A favorite in the fashionable world.

A FEW SHELLS FROM THE COAST OF WESTERN AUSTRALIA

Vilma Wicks
Unit 3/2 Moonya Rd., Carnegie 3163
Victoria, Australia

I have never had the opportunity to gather shells from Western Australia, but fortunately I have sons who have brought back for me some lovely specimens from the waters of that coast beginning at the southwesternmost point of Australia, Cape Leeuwin - Geographe Bay, where the Southern Ocean and the Indian Ocean meet.

Some of our most beautiful volutes and cowries are to be found along the west coast. The coastline is very extensive, passing through cool and temperate zones in the south to subtropical and very hot tropical zones in the north. There are many and varied beaches, and whilst there is easy access to most white sandy beaches, some are reached by four-wheel drive vehicles; tides also vary.

From Geographe Bay I have a nice Cypraea friendii friendii Gray, 1831. It is lightly marked on top with dark brown sides and spotted, underneath is dark brown whilst the area of the teeth is white.

We go north now to Rottnest Island which is across from Perth, the capital city of the State of Western Australia. Rottnest Island, with a 30-mile coastline, is a holiday resort and weekend playground for the citizens of Perth. It is only twelve miles offshore. The island was named by the Dutch navigator Willem de Vlamingh in 1696, and its name means "rat nest". The navigator mistook the quokkas — a species of short-tailed scrub wallaby — for rats. In 1987 the America's Cup will be contested within sight of the island.

It was from Rottnest Island that my son Graeme, diving, found Haliotis Leach, 1814, a most interesting shell that grows to 10 cm. and here is considered moderately common. It has a lovely pearl inside, some green color and some pink; inside there is a channel as opposed to the outside which is raised like a cord or wall; it is a masterpiece of sculpture. Also, in shallow water, Graeme found some of the large white Ceriths, Campanile symbolicum Iredale, 1917. It can grow up to 29 cm. and is the only surviving species of a fossil recording. It is heavy and smooth, and has a limy encrusting.

Another large shell Graeme found is a limpet, Patellanax laticostata (Blainville, 1825), they grow to about 19 cm. It is white, encrusted, and with many young Patelloida nigrosulota attached on the back. The inside is porcellaneous with orange or green edging around a muscle scar with brown dots or marks. The outer edge has a brown short fringed marking.

We will now go some sixty miles north from Perth to Lanselin. It was here that Graeme found the very nice Haliotis semiplicata Menke, 1843, a medium-sized (6 cm.) shell, rather flat with many fine striae, looking like fine linen. Inside, varicolored pearl looking like silk. Classed as uncommon. Incidentally, Lancelin Island barely qualifies for the name, but it is too big to be called a rocky outcrop. It is only 87 acres in area, and only half a mile offshore.

Rottnest and Lancelin Islands are visible remains of a system of limestone reefs that extends more than 1,000 miles along the Western Australian coast, from the Southern Ocean to north of Shark Bay.

This is a different limestone, however, from the fine-grained limestone built up undisturbed on the Southern Ocean floor over millions of years in the Tertiary Period, which now forms the cliffs of the Great Australian Bight and the incredible flat expanse of the Nullarbor Plain. The Western Australian limestone is coastal limestone. It is of Pleistocene or Recent origin, and shells, identifiable grit and even the shapes of tree trunks and roots can be seen.

As the last Great Ice Age ended, the sea was 400 feet lower than it is today, and Australia's west coast extended many miles further out into the Indian Ocean. From 17,000 years ago, the rising sea and the prevailing westerly winds built up wave upon wave of sand dunes. New dunes covered older dunes and in turn were covered themselves. The sea itself overwhelmed the outer dunes, leaving a few islands like Rottnest as the last evidence above water of where they were. The process of building and destruction was carried on simultaneously. While the mass of sand and shell pieces consolidated as coarse limestone, it was cut into and broken by waves and leached away by rain. The pitted and honeycombed reefs and the tumble of debris yield one of Australia's richest fisheries. Almost all of Australia's export rock lobster is caught here — the United States is the major customer.

Although in some parts — north of Geraldton — limestone cliffs rear 700 feet above the waves, the coast is mostly low and one part is much like another. It is difficult to make landfall except where rivers have made breaks in the inhospitable cliffs. This was one reason why early settlers passed by and settled elsewhere. Another was that there did not seem to be anything worth landing for. This coast was the first glimpse Europeans had of Australia, and they were not impressed.

Seeking a quicker way to the Spice Islands (now Indonesia), Dutch navigators rounding the Cape of Good Hope would catch the prevailing westerly winds — the Roaring Forties — for a quick voyage across the Indian Ocean. But if they miscalculated and delayed turning north they were in danger of being caught in the maze of limestone reefs. In particular, the Abrolhos Islands were the setting for the end of several voyages. The Abrolhos Islands, near Geraldton, are a 200 square mile complex of small islands, reefs and sandbanks reaching more than 50 miles out from the coast. The most famous shipwreck was that of the Batavia in 1629. In the aftermath a mutiny occurred and 125 of the castaways were murdered. But in the meantime the commander, Captain Francois Pelsaert, succeeded in reaching the Spice Islands to get help. For the mutineers the rescuers became executioneers. Today the Abrolhos Islands are strictly protected in order to preserve their rich and unique fauna.

Further north now to Shark Bay, just above the 26th parallel on Australia's westernmost bulge. It was originally called "Sharks Bay" by William Dampia in 1699 when he saw large numbers of sharks there. It is a large shallow inlet divided into two branches, of which Monkey Mia in Hamlin Pool is one. The beach is wide with white sand. Here it was that another son, Kenneth, found two volutes: *Aulicina nivosa* Lamarck, 1804 and *Aulicina nivosa oblita* E. A. Smith, 1909. The *nivosa* is smooth bluish grey with broad striped bands and white dots in between; *nivosa oblita* is similar but has short sharp spines on the shoulder.

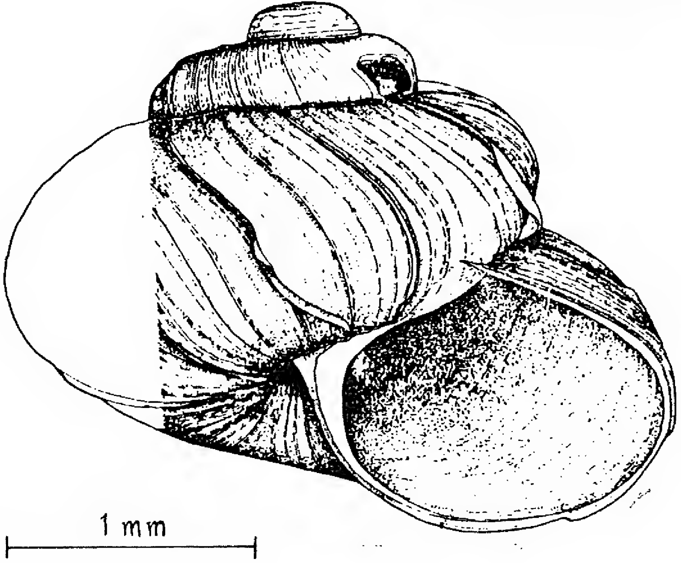
Our last stop is Port Hedland which is much further north and around to the northeast. It was here that Graeme found a volute, Amoria ellioti (Sowerby, 1864). It is of medium size (the species grows to about 8.5 cm.) and the shell is creamy with dark brown vertical stripes which are mostly straight and unbroken.

In conclusion, it might be of interest to relate that pearl shell was discovered in Shark Bay about 1850, also that Broome, further north, is well known in the history of pearl fishing/shelling, with the shells being harvested for the making of pearl buttons.

WHAT'S IN A NAME?

In his paper ENDODONTOID LAND SNAILS FROM PACIFIC ISLANDS, Part II, Alan Solem of the Field Museum of Natural History describes a very tiny land snail found in the interior of Viti Levu at 950-3,200 feet elevation, Fiji.

Dr. Solem writes that because the only known species occupies a portion of Viti Levu that includes the Mba District, he chose the European spelling of the district for a generic name, and that this was followed by an irresistible impulse to use the specific name humbugi.



Ba humbugi, new species.

Submitted by Russell Jensen

9M "CLAMS" FOR SURVEY

By Jack Anderson in the New York Post, October 31, 1985, page 43

Have you watched any clams lately? Listened to any mussels? If you have, the U.S. Fish and Wildlife Service wants to know the fascinating details.

The agency proposes to spend $9 million on a nationwide survey to determine our wildlife observation habits, if any.

Beginning in January, Census Bureau interviewers will telephone 158,000 possible nature lovers and ask them such questions as:

"Were there any occasions when you enjoyed seeing or hearing wildlife while on a trip? Did these include turtles, frogs, lizards, and snakes? Insects and spiders — crabs, clams, mussels?" The 75-page questionnaire doesn't go into the technique of clam-watching.

Didn't anyone object to the clam-watchers survey? Certainly. But it was approved by a review panel that included officials of the Agriculture Department and the Environmental Protection Agency.

From: NEWSLETTERS OF THE NATIONAL CAPITAL SHELL CLUB

No. 80, Spring 1985:

YOUR FOSSILING TRIP - APRIL 20

Arrangements have been made for a NCSC group to collect fossils at the Texas-Gulf, Inc. Phosphate Pit, Aurora, North Carolina. Beautiful fossils can be had there: Miocene, Pleistocene, and Pliocene from Pungo River and Yorktown Formations. It is about a six-hour trip from Washington, which means that most trippers will want to go down on April 19 and come back on April 21, to save wear and tear. The pit will be open from 9:00 to 3:00 and we have reservations for more than ten fossilers.

Overnighting has been arranged at New Bern, North Carolina . . .

No. 81, Summer 1985:

DANTE'S INFERNO II

When your time has come and your spiritual being finds itself on the down elevator, not to worry if you have ever collected fossils in the Texas Mining Company phosphate mine at Aurora, North Carolina.

When the door opens and Satan thrusts you into the fiery lakes of hell, you will feel comfortable because it will feel good compared to that mine.

The mine itself looks like a small Grand Canyon done all in gray. It is about 150 feet deep and miles long. At the bottom are piles of gray earth and small bodies of green water. On the day our group visited, the temperature was in the mid-nineties in the shade, and no shade.

We had to slide, scramble and fall down the sides of the mine and after about an hour things started to go black and/or red. We had to crawl - and be helped - back up, then to sit in the heat of the bus until revived enough to make room for another demented soul.

I will not go into detail about the number, genus and species of the material we collected - I just wanted to put down my impressions of the place while those details are still "burned" into my mind.

Hmmmmm - wonder how it would be in November, when it's cooler?

= = Pinky Pinkerton NCSC = =

(We have not yet seen any report of the species collected on the NCSC fossiling trip or whether they were worth the descent into the inferno. Having had similar experiences, we sympathize. -Ed.)

PINNIDAE — MARINE TENEMENTS

It was L. Perry who, in an article in Science 84:156-157, called the Pinna "A Marine Tenement" — a most excellent description. When shelling seems dull, examine the Pen shells that have been cast up on the beach. You'll find a surprising assortment of tenants.

In Johnsonia 3(38):285-326, The Family Pinnidae in the Western Atlantic, by Ruth D. Turner and Joseph Rosewater, 1958, the authors give us much interesting information in addition to the scientific descriptions and discussions. We quote from pages 294-296:

Because the Pinnidae are such unique bivalves and have intrigued man since early historic times there are a host of common names for this group. In France they are known as 'jambons' or ham-shells, because of their shape, and the Mexicans refer to them as 'hachas' or hatchets. In England they are known as fan-mussels, fin-shells or sea-wings and in the United States they are often referred to as pen-shells or sea-pens. The Australians refer to them as razor backs or razor clams as it is so easy to cut one's feet on them. This common name should not be confused with that of *Ensis* or *Siliqua* which are also called razor clams because of their shape.

Associates of the Pinnidae

The Pinnidae are host to a number of organisms which live both upon the outside of the valves and in the mantle cavity. Most of the associated organisms use the shell only as a point of attachment and support. Perry (1936) reported finding a total of twenty-five different organisms living in association with *Atrina rigida*. From a fine shipment of this species which we received from Harvey Bullis, dredged from 3-4 fathoms off Tampa Bay, Florida, we removed 28 species of mollusks of which 12 were living, as well as barnacles, tube worms, hydroids, algae, bryozoa, tunicates and brittle stars.

Some of the organisms associated with the Pinnidae, particularly crustaceans, have an interesting commensal relationship with them. Aristotle was the earliest writer to mention the interesting association of a crab with *Pinna*. Chemnitz (1785) fully described this small crab, *Pinnotheres*, which lives in the mantle cavity of *Pinna*. (*Pinnotheres*, from the Greek: *Pinna* + terein, to guard, i.e. the *Pinna* guardian.) The crab was said to leave the cavity periodically, but always to return when danger threatened, thus warning the *Pinna* which would thereupon close its valves protecting both itself and the *Pinnotheres* within. This fanciful story of the "friendship" of these two animals was made famous by Pliny and additional accounts of this relationship have been written by Poli (1795), Montagu (1803), Johnston (1850), Jeffreys (1863) and others. Apparently wherever members of the Pinnidae occur there are some small crabs which live with them.

* * *

In a study, FAUNA ASOCIADA CON ATRINA SEMINUDA (Lamarck, 1819), published in Comunicaciones de la Sociedad Malacologica del Uruguay VI (44):117-120, E. deC. Rios reports on fauna associated with 52 specimens of this *Atrina* collected by junior authors B. L. Albuquerque and G. P. Oliveira from 10-20 meters depths off Salvador, Bahia State, Brazil. In addition to commensal crabs, a small shrimp, and miscellaneous organisms, there were 21 species of mollusks:

Rissoina cancellata
Calyptraea centralis
Crepidula plana
Siratus thompsoni
Anachis catenata
Engina turbinella
Nassarius albus
Nuculana acuta
Arca zebra
Barbatia candida
Anadara notabilis
Noetia bisulcata
Pteria colymbus
Pinctada imbricata
Ostrea equestris
Leptopecten bavayi
Chama macerophylla
Arcinella brasiliana
Cumingia coarctata
Cardiomya ornatissima
Ischnochiton striolatus

* * * NOTICE * * *

PLEASE KEEP THESE DIRECTIONS HANDY SINCE YOU WILL NEED THEM FOR THE JANUARY 12 MEETING TO BE HELD AT THE HOME OF FRED CANNON

292 Warren Street, Brooklyn NY

2:30 pm

BY CAR

BROOKLYN QUEENS EXPRESSWAY: ATLANTIC AVENUE Exit. Turn right on ATLANTIC AVENUE to COURT STREET, turn right. Go 7 blocks on COURT STREET to BALTIC STREET, turn left. Go one block to SMITH STREET, turn left. Go one block to WARREN STREET, turn left. House is 3/4 of the way up the block, on the left side.

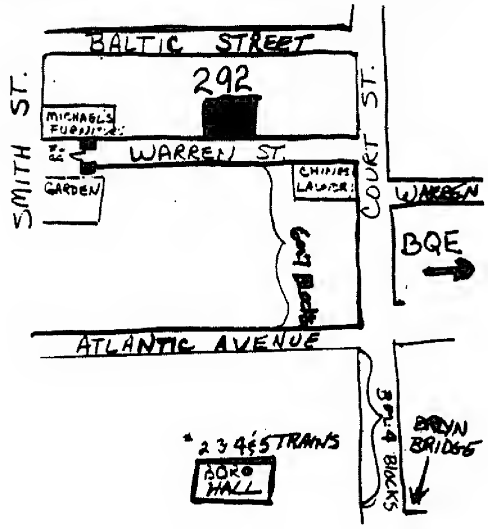
BROOKLYN BRIDGE: Take first exit on right, CADMAN PLAZA, bear left and turn left at traffic light. Go straight on CADMAN PLAZA - it turns into COURT STREET. Go seven blocks past ATLANTIC AVENUE and follow directions above.

BY TRAIN

FROM MANHATTAN: Take F train to Brooklyn. Get off at BERGEN STREET. (Use front end of train.) You will be at SMITH & WARREN STREETS. Walk up Warren 3/4 of a block. If you are near a GG train get off at the same stop - BERGEN STREET. If you are near the A Train, take it to JAY STREET - BORO HALL, cross platform and change for the F, one stop to BERGEN STREET. The 2, 3, 4 & 5 Trains come into Brooklyn. All stop at BORO HALL. Walk down COURT STREET, past ATLANTIC AVENUE to WARREN STREET, turn left. House is on the right side of the street.

IF YOU PLAN ON ATTENDING PLEASE CALL FRED @ (718) 852-1765

* * *



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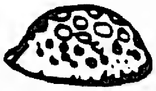

PRESENT N.Y.S.C. MEMBERSHIP CARD FOR FREE ADMISSION TO MUSEUM ON MEETING DAYS

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FOUNDED JAN. 1949

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These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Items and articles for publication in the NOTES should be sent to the Editors.

The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK
SHELL CLUB
INC.

FOUNDED JAN. 1949

March, 1986

Dear Members:

Our January meeting at Fred Cannon's home was a truly memorable occasion; that quality and quantity of shells! the beautiful display cases! his renovation of an old Brooklyn house! the delightful Christmas decorations! and, last but not least, the delicious refreshments Fred provided for us. Officially, for the Club, and personally, for those who were there, "THANK YOU, FRED!"

Although it is not quite time - yet - for our April social/auction, plans are being made and your help is needed. (See page 18 for details.) It will be held at Dorothy Jensen's dance studio in Astoria, Queens, on April 13. Carol Lindsay is again chairing the event and could use your help. If you have shells to donate you may wish to get in touch with Carol or bring them to the March meeting.

We hope to see you soon...

THE OFFICERS OF THE NEW YORK SHELL CLUB

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 419 of the American Museum of Natural History, except in April when our annual social and auction is held on other premises.

NEXT MEETINGS: MARCH 9, 1986 at 2:00 p.m., Room 419, AMERICAN MUSEUM

Masao Tabakotani will speak on his shell collection. He has been a N.Y. Shell Club member for 10 years and has recently returned to New York after several years in Japan

SUNDAY, APRIL 13, 1986, ANNUAL SOCIAL AND AUCTION

see page 18 for all details

SUNDAY, MAY 11, 1986, at 2:00 p.m., Room 419,
American Museum

Walter Sage, American Museum;
"Describing a New Species"

On March 9 and May 11, the meeting room will be open at 1:30 p.m. for 'shell clinic', current literature, mini-exhibits, new ideas, conversation, etc.

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HAROLD SUSSMAN

It is with deep sadness that we report the death on December 23rd of Dr. Harold Sussman of Brooklyn after a debilitating bout with cancer. He was 68 years of age; only a few years ago he retired from his 40-year practice of dentistry.

During World War II Harold served in the Dental Corps of the United States Army in the China-India-Burma theater as well as in the States, and attained the rank of Captain. He was a Fellow of the American Dental Association, a former U.S. Chessmaster, ranking in the top 25, and a Master at bridge.

A member of the New York Shell Club for 15 years, he was an interested observer and participant. He served on the club's board of directors, and for years was one of the group that met monthly to stuff, stamp, seal and send off these NOTES.

Our heartfelt sympathy is with his wife, Marie, and their family.

A. MYRA KEEN

Dr. Angeline Myra Keen, eminent malacologist and paleontologist, died of cancer on January 4th at age 80.

She received her doctorate at Berkeley in 1934 and in that year began her career at Stanford University that was to last half a century, first as Resident Associate in Geology, advancing through the years to Professor and Curator Emeritus.

Dr. Keen's researches were on the marine mollusks of the California and Panamic Provinces. Of her many contributions to malacology, she is perhaps best known on our east coast for her "Seashells of Tropical West America." The many credits listed in the 1973 edition of "American Malacologists" pp. 324-5 can give only indications of the recognition this great lady received for her meticulous works.

THOMAS E. PULLEY

We have received news of the death by cancer, on November 19th, of Dr. Thomas Edward Pulley, Director of the Houston Museum of Natural Science. He was 69 years of age.

Dr. Pulley had been associated with the Houston Museum since 1948, and his interests were in the marine mollusks of the Texas coast. He was malacologist, biologist, lecturer, and mentor of the Houston Conchological Society.

CALENDAR OF EVENTS:

AT THE AMERICAN MUSEUM

March 19, 7:30-9:30 p.m. American Littoral Society's symposium, At Home with Sharks and Fishes. Eugenie Clark, Dee Scarr, Robert Lehman. Tickets $7 from the society, Highlands, NJ 07732 (Phone 201: 291-0055).

SCHEDULE OF SHELL SHOWS

March 6-9	Sanibel. Contact: Dorothy Putnam, Sanibel Community Center, P.O. Box 72, Sanibel, Florida 33957. Ph. 813:472-2155.
March 12-13	Marco Island. Contact: Vera Wooley, 930 Montego Ct., Marco Island, Florida 33937. Ph. 813:394-1098.
April 3-6	Palm Beach, at West Palm Beach. Contact: Phyllis Diegel, 143 Alcazar Street, Royal Palm Beach, Florida 33411. Ph. 305:798-5351.
April 11-13	Georgia Shell Club at Northlake Mall, I-285 at LaVista Road, Atlanta, Georgia 30345. Contact: Carl and Rene Beeler, 1868 Gainsborough Drive, Chamblee, Georgia 30341. Ph. 404:451-2221.
April 18-20	St. Louis, Missouri. Contact: Alan Gettleman, 4045 Central Lane, Granite City, Illinois 62040. Ph. 618:931-1312.
August 1-3	Jacksonville Shell Club at the Jacksonville Beach, Florida, Flag Pavilion.

SCHEDULE OF CONVENTIONS

June 22 - July 9	International Symposium on Indo-Pacific Marine Biology, at University of Guam. Sponsored by Western Soc. of Naturalists. Contact: Prof. David H. Montgomery, WSN Sec'y, Biological Sciences Dept., California Polytechnic S.U., San Luis Obispo, California 93407. Ph. 805:546-2446.
July 1-5	American Malacological Union/Western Society of Malacologists, Joint Meeting. Sheraton Hotel, Monterey, California. Contact: Dr. James Nybakken, Moss Landing Marine Laboratories, Box 223, Moss Landing, California 95039.
July 15-19	Conchologists of America. Sheraton Yankee Trader Hotel, Fort Lauderdale, Florida. Contact: Anne Joffe, 1163 Kittiwake Circle, Sanibel Island, Florida 33957.
August 10-17	4th North American Paleontological. Boulder, Colorado. Contact: Norman L. Gilinsky, Dept. Geological Sciences, VPI & SU, Blacksburg, Virginia 24061.
August 31 - September 6	Unitas Malacologica, 9th International. Edinburgh, U.K. Contact: P. Jung, Naturhistorisches Museum Basel, CH-4051 Basel, Switzerland.
September ..	"Shallow Tethys 2" - international paleontological symposium. Riverina College of Advanced Education. Contact: Dr. K. G. McKenzie, Riverina College of Advanced Education, P.O. Box 588, Wagga Wagga, NSW 2650, Australia.

Sources: Shell Shows - Donald Dan
Conventions - AMU NEWS

(Continued p. 4)

June 22-26 Shellfish Institute of North America and National Shellfisheries Association Joint Annual Meeting hosted by Pacific Oyster Growers Association. Crown Plaza Holiday Inn, Seattle, Washington. Contact: Dr. Kenneth K. Chew, School of Fisheries WH-10, University of Washington, Seattle, Washington 98195. (Phone 206: 543-4290.)

AUCTIONS

The auction of the Schweitzer collection of rare books on Mollusca will take place at the Swann Galleries, 104 East 25th Street, New York 10010, on February 27th, beginning at 1:30 p.m. Some of the authors represented were mentioned in NOTES 297, page 13.

Don't forget that an auction is a very important part of the New York Shell Club's annual social. Your contributions are necessary to make it a success.

HIGHLIGHTS OF THE AUTUMN MEETINGS

September 8th, 1985: President Mary Anne Bastek announced a change in the program for the November meeting. Ruth and Leon Juster have invited members to gather in their home on November 10th for socializing, snacking, and the opportunity to view their extensive shell collection and the art pieces that decorate their apartment. This gathering is to follow a brief business meeting at the museum.

The program was the showing of a slide presentation, accompanied by taped narration, made by members of the Long Island Shell Club, The show, titled "Shells of Long Island," included photos of both shells and collecting locales.

Milton Werner, Recording Sec'y

October 13th, 1985: President Mary Anne Bastek read a letter from the American Museum thanking the club for its recent donation to the William E. Old Malacology Fund, and another from Dr. Clyde Roper of the Smithsonian Institution thanking us for our donation to the fund honoring Dr. Joseph Rosewater. She then announced the change in the program of the November meeting (see September's HIGHLIGHTS, above).

Nick Katsaras read from an article in Defenders Magazine of December 1975, which stated that more species are becoming extinct in Hawaii than anywhere else. It said, for example, that collecting is threatening many terrestrial species. Concerning threats to local species, Mathilde Weingartner reported that gasoline escaping from a ruptured pipeline on Staten Island had gotten into the sewer system, and thereby into the William T. Davis Wildlife Refuge, killing millions of killifish. Two days later, floods caused by Hurricane Gloria carried the gasoline into nearby marshes, where it killed fish and mollusks and coated vegetation.

The program was a slide show titled "Everything You Wanted to Know About Volutes but were Afraid to Ask," with narration by Jean M. Cate. The photographs of a great number of species illustrated the differences in columellar folds that characterize the seven families of the Volutacea.

Ruth Juster displayed a specimen of Lopha cristogalli still attached to a piece of the coral on which it had grown.

The door prizes were Murex palmarosae, won by Dr. John Bockelman, and Spondylus americanus, won by Leon Juster.

Milton Werner, Recording Sec'y

November 10th, 1985: President Mary Anne Bastek drew attention to a calendar, illustrated with photographs of shells and flowers together for each month, for which orders were being taken.

Walter Sage described volunteer work being done under his direction by NYSC members. Those presently involved in lightening the overload of work in the museum's mollusk department are Theta Lourbacos, Anne Whiteman, Dr. Walter Jacobs, Bob Bendersky and Milton Werner. Walter noted that good use could be made of more volunteer help.

Walter Sage displayed a "Surprise Shell-of-the-Month" — a Monetaria moneta, found on Brooklyn's Manhattan Beach by Marty Gill the day after the visit by Hurricane Gloria. This species of Money Cowry is normally found in the Indo-Pacific and Galapagos.

The deaths of Kirk Anders and former member Mario D'Amato were noted, also the news that Margaret Teskey had moved from North Carolina to Oregon. Her new address: 5450 Erickson Avenue, Apt. A321, Beaverton, Oregon 97005.

A visitor was given help in identifying a number of shells her father had collected during his Navy service in the Pacific theater.

The door prizes were Pecten nodosus and Voluta kieneri.

The meeting was adjourned at 2:17 p.m. so that members could move along to the home of Ruth and Leon Juster to socialize and to see the Justers' collection.

Milton Werner, Recording Sec'y

December 8th, 1985: Corresponding Secretary Edna Christensen presided in the absence of both the president and vice president.

Edna expressed the appreciation of the club to Ruth and Leon Juster, at whose suggestion and invitation the program of the November meeting had consisted of a most enjoyable visit to their home, socializing and seeing their collection.

Walter Sage offered the reminder that the Halpern collection of Cypraea was still on display in the American Museum, and that the origami Christmas tree could be seen in the Roosevelt Rotunda.

The door prizes were Cypraea camelopardalis, won by Tillie Weingartner, and Busycon coarctatum.

As Shell-of-the-Month, Nick Katsaras brought a selection of shells that had been shown on slides at the October meeting. They included Zidona dufresnei, Voluta grossi, Scaphella junonia, Amorena undulata, Marginella pringlei, Oliva porphyria and other beautiful specimens.

The major program event was a showing of the slide series titled

"The Life Story of the Tree Snail, Liguus fasciatus," created by Fran Hutchings Thorpe. Walter Sage read the script that accompanies the slides.

It was announced that Fred Cannon has invited the club to hold the January meeting at his home in Brooklyn. Travel directions are in the December issue of the NOTES. Fred requested affirmations from those members who will attend. There will be no meeting next month at the museum.

Walter Sage and Theta Lourbacos
Acting for the recording sec'y

NOTES FROM THE AUSTRALIAN SHELL NEWS

In 1981 Australia declared a 200 nautical mile economic zone around the continent. In their investigation of the previously little-known fauna of the continental shelf off northwestern Australia, the Commonwealth Scientific and Industrial Research Organisation and marine biologists from the Western Australian Museum have collected much interesting material. Many mollusks have been found, several of which are the first records of their family in Australia.*

Commercial trawlers working the area also brought up rare and/or new species of mollusks. Apparently considerable numbers of these specimens went either directly to the marketplace or abroad "for quick naming and sale," too many times scattering specimens that first should have been held for study. **

Australian Shell News *July 1983
Australian Shell News **July 1984

CSM ACCEPTS AUSTRALIAN RECOMMENDATION

At the 1984 Norfolk meeting, AMU's Council of Systematic Malacologists voted to accept the recommendation of the Malacological Society of Australia that primary types of new species of Australian mollusks be deposited in Australian museums, rather than in American (or other foreign) repositories.

R. S. Houbrick, CSM president,
in AMU NEWS 16(2):5, Nov. 1985

[In 1984 Australia enacted the Wildlife Protection Act which banned all exports of wildlife, including shells. (See: NOTES 293.2-ed.)]

AUSTRALIAN SHELLING NEWS

R. Tucker Abbott

It's evidently getting better! The 1984 clamp-down and ban on collecting or exporting shells may well be on its way out. In December 1985 I received a letter from a responsible collector and shell club officer living in Rockhampton, Queensland, Australia, saying they are making good progress with the Great Barrier Reef Marine Park Authority and the Queensland Marine Park Board: "Club members (Keppel Bay Shell Club) can now get a no-limit permit (to collect shells) for 12 months at a time. Let's hope nobody abuses the privilege. The Federal Government also allows us to obtain a permit to send shells out (of Australia."

UPDATE ON MOLLUSKS WITH INDO-PACIFIC FAUNAL AFFINITIES IN THE TROPICAL EASTERN PACIFIC — IV

Donald R. Shasky

(Adapted from a paper presented to the annual meeting of the Western Society of Malacologists - August 1985.)

In 1983 Frank Bernard published a CATALOGUE OF THE LIVING BIVALVIA OF THE EASTERN PACIFIC OCEAN. This list is somewhat difficult to use since, with the exception of the Galapagos Islands, Cocos Island, and Clipperton Island, he does not cite specific localities for any of the species. He lists distributions in degrees latitude.

Two of the species listed below that I collected at Cocos Island (*Lopha folium* and *Malleus regulus*) have already been reported from the Panamic fauna in Bernard's catalogue, but I could not determine exact localities. I want to thank Frank Bernard for the identification of the bivalves listed here. Recently while he was at the Santa Barbara Museum of Natural History, Paul Scott was kind enough to show him some of my problem species.

Lopha folium (Linnaeus, 1758). This species is cosmopolitan. One specimen was on a detached sea urchin (*Eucidaris*) spine taken at a depth of 13 meters off Isla Pajara, Cocos Island. I have two additional specimens, also on detached *Eucidaris* spines from 8 meters, Pulmo Reef, Baja California Sur.

Malleus regulus (Forskal, 1775). Two years ago, in Seattle, I reported finding *Spondylus hystrix* (Bolten, 1798) at Cocos Island. R. Tucker Abbott later informed me (pers. comm.) that *S. nicobaricus* Schreiber, 1793 was an earlier name. I note this since *S. nicobaricus* is the host of *Malleus regulus*. *M. regulus* is usually attached under the spines of its host and taken in depths of 17-27 meters.

Isognomon incisum (Conrad, 1837). This species was described from Hawaii and up to now has been known only from there to my knowledge. It is very common intertidally at Wafer and Chatham Bays, Cocos Island.

Cardita aviculina (Lamarck, 1819). This species is very common at Cocos Island from the intertidal to depths of at least 30 meters.

Triphora triticea (Pease, 1861). Bert Draper, who has extensively studied the Panamic Triphoridae and who also works with Hawaiian micromollusks, identified this species for me. *T. triticea* was described from Hawaii, but is widely distributed in the Indo-Pacific. I have taken it at various sites at Cocos Island in depths of 13-33 meters.

Bibliography

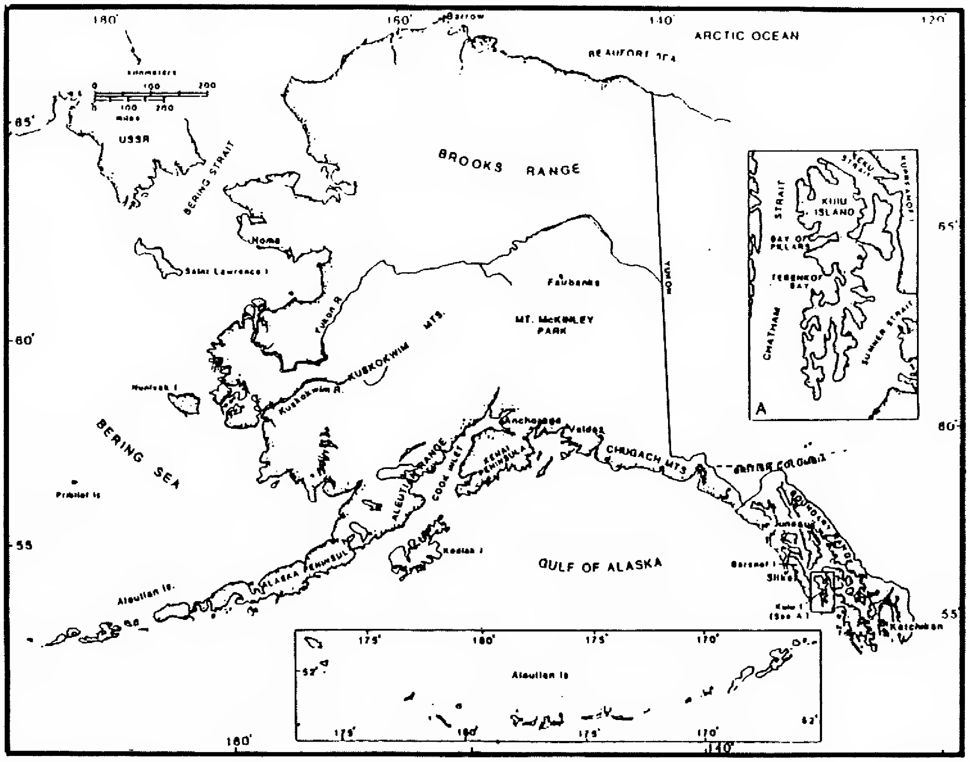
BERNARD, F. R., 1983. Catalogue of the living Bivalvia of the eastern Pacific Ocean: Bering Strait to Cape Horn. Canad. Spec. Publ. Fish & Aquatic Sci. 61:i-vii +1-102.

KAY, E. A., 1979. Hawaiin marine shells. Reef and shore fauna of Hawaii. Bernice P. Bishop Mus. Spec. Publ. 64(4):i-xviii + 1-163, 195 figs.

From: FESTIVUS XVIII(1):3-5, Jan. 1986
Publication of the San Diego Shell Club

MOLLUSKS OF AN ALASKAN FJORD:
Bay of Pillars

by JAMES DUGGAN



The author is a biologist on the staff of the Sandy Hook Laboratory, National Marine Fisheries Service.

There are many beautiful and interesting places to observe and study marine life in the United States. However, few areas are as undisturbed in their natural surroundings of nearly wild, primitively beautiful forests as the cold pristine waters of Alaska. Alaska has a shoreline 33,904 miles long, mainly rocky and jagged, with some areas of the coast composed of sand and gravel beaches and marshy vegetation.

Alaska has been divided into six ecological regions — the Gulf Coast, Alaska Peninsula and Aleutian Islands, Bering Sea Coast, Great Interior, Arctic, and Southeastern. My concern here is with the last. The Southeastern region has a moderate or maritime climate, with warmer temperatures and higher rates of precipitation (up to 221 inches/year) than the rest of the state. These conditions support an abundant flora and fauna including those organisms that thrive in the cold, crystal clear waters surrounding the thousand or so named islands that constitute Southeastern Alaska.

Southeast Alaska or the Panhandle, extends about 600 miles from Icy Bay in the north to Dixon Entrance in the south, and is bordered on the east by the Coast Mountains adjacent to British Columbia and on the west by the Gulf of Alaska.

The islands of Southeast Alaska include mountains with peaks that range from 5,000 to 18,000 feet in altitude. These peaks plummet to cold, glacially furrowed bays, providing protection and food for a wide variety of marine life.

Kuiu Island, about 120 miles SSW of Juneau, is a heavily forested island inhabited by many animals including Sitka black-tailed deer, black bears, and bald eagles. The Bay of Pillars, which is encompassed by Kuiu Island, was the location for the observations reported here. The Bay of Pillars is situated on the northwestern side of the island, harboring many rocky inlets and has a rugged, jagged coastline of igneous and metamorphic rock. The bay is divided into lower and upper sections, with maximum depths approaching 300 and 235 feet, respectively.

A PRIMITIVE CLASS: Living in and around tidal pools and the rocky shoreline are marine mollusks, considered to be members of one of the most primitive groups still extant. These are the chitons (Class Polyplacophora) which first appeared about 570 millian years ago. They have eight beautifully sculptured plates adorning their dorsal surface. These provide protection against predators, solar radiation, and wave action in the intertidal zone. Most have nocturnal feeding habits and live under rocks or plants during daylight hours.

One attractive chiton, the Lined Chiton (_Tonicella lineata_), is particularly abundant in tidal pools where pink coralline algae, its primary food source, blankets the rocky substrate. The pink coloration of the algae blends with the mollusk's reddish-orange plates, and renders the chiton almost invisible to predators.

The Black Katy Chiton (_Katherina tunicata_) occurs in large numbers, grazing on algae in the intertidal zones in both upper and lower Bay of Pillars. The genus name honors Lady Katherine Douglas, who in 1815 sent specimens to England. The upper portion of the bay is less saline, due to stream runoff, and supports fewer numbers of _K. tunicata_. However, a great abundance can be found in the lower bay, clinging to rocks in areas of strong wave action. This chiton is unusual in that it can withstand constant wave action and the intense sunlight that it receives while exposed on rocks during low tide. Most chitons are sensitive to sunlight and are nocturnal foragers.

In both the upper and lower reaches of the bay, I found a few Hairy Mopalias (_Mopalia ciliata_), with bristly golden hairs sticking outward from the body. This chiton feeds not only at night but also on foggy and overcast days. While most other chitons are primarily herbivorous, this chiton feeds on both animal and plant material.

A FAMILY WITH ALL THE MOVES: Limpets (Family Acmaeidae) are among the most abundant gastropods in the area. The family name is derived from the Greek "acme," meaning point, referring to the pointed apex of the shell. During the day these animals are stationary and are found adhering tightly to rocky surfaces, while at night they browse on microscopic plant material covering the rocks. The shape of the limpet is often influenced by the environment in which it lives. Those animals exposed to wave action tend to have a low shell, while those living at greater depths or in calmer waters have a high shell.

By far the most common limpet observed was the Pacific Plate Limpet (_Acmaea testudinalis scutum_) This species is noted for its ability to move up and down the substrate with the tide, maintaining a position below the water's surface at all times. They are found along the shores of the bay in areas not subjected to heavy wave action. A similar species coexisting with _A. testudinalis scutum_ is the Mask

Limpet (Notoacmaea persona). This animal is particularly active on a night ebb tide crawling among the rocks, feeding on algae.

The shell of a White-capped Limpet (Acmaea mitra) was found along the lower bay shore. This limpet prefers colder waters and remains on rocky surfaces below the low water mark. The white shell is frequently encrusted with coralline algae, producing a pinkish tinge on its knobby surface. The height of this shell is one of the highest among the limpets.

TOPS IN ALASKA: An attractive gastropod found intertidally in the lower bay is the Western Ribbed Top Shell (Calliostoma ligatum). This snail is also referred to as the Blue Top Shell because of a pearly bluish color seen when the outer layer of the shell has been worn away. This animal feeds on algae and other microscopic flora among the rocks in tidal pools.

HOLDING ON BY A THREAD: Mussels (mytilidae) are a group of bivalves common in many areas and, according to Rachel Carson, a "virtually untapped shellfish resource." The particular species of mussel she referred to is the Blue Mussel (Mytilus edulis). This mussel is found widespread on both coasts and abundantly in the Bay of Pillars. At low tide, large groups of these bivalves can be seen attached fast to rocks or kelp by their byssal threads. A larger member of this family found in the tidal pools and along the jagged shoreline down to a depth of 600 feet is the Northern Horse Mussel (Modiolus modiolus). In the lower bay, this mussel is found in tidal pools layered with coralline algae. Many of their shells become encrusted with the algae and pitted with age, eventually blending in with their surroundings. This mussel is chiefly used as a bait in Alaska; in France 40,000 tons of the blue mussel are farmed each year for human consumption.

A JINGLE FROM THE SEA: When strung on a cord and suspended in the wind, shells belonging to members of this family can produce a detectable jingling sound. These mollusks known as Jingle Shells (Family Anomiidae) possess two shells of unequal shape and size. Their flat right valve attaches to rocks or other hard substrates while their left convex valve faces seaward. The only member of this group of bivalves found in the Bay of Pillars was the False Pacific Jingle Shell (Pododesmus macrochisma macrochisma). No live specimens were collected; only left valves were found in the lower bay. The greenish coloration of their shells derives partly from the animal's own pigment and partly from one-celled green algae that inhabit the inside of the shell. The convex valve is sometimes invaded by other organisms such as tubeworms and bryozoans. This animal ranges from the low-tide line to a depth of 200 feet.

BLACK BEARS' DELIGHT: During low tide, Common Pacific Littleneck Clams (Protothaca staminea) are easily collected from the gravelly and pebbly beaches on the bay, in great abundance a few inches below the sediment surface. The species name is a Latin adjective referring to the fine, crowded riblets on the shell's outer surface. Man, however, is not the only animal who prizes the taste of these shellfish. Black bears will also stroll onto the beach and dig up these clams, especially in the spring, before edible vegetation is available. This clam is harvested both by commercial and sport fishermen for food along the Pacific Coast from the Aleutian Islands to Baja California.

THE DOGWINKLE TRIO: The Murex family (Muricidae) lives mostly in shallow tropic waters. Two Mediterranean species were the source of Royal Purple, a dye that decorated imperial Roman robes. Muricids are carnivorous, feeding on other gastropods as well as bivalves, worms, corals, barnacles, and other invertebrates. I found three species.

The Frilled Dogwinkle (Nucella lamellosa) is a common sight on rocks in the lower bay. It possesses erect frills forming hollow spines along its spiral cords, enhancing its ornamented appearance. There are individuals, however, usually found in the southern reaches of their range, that lack the frilled appearance.

A smaller member of this group is the Channeled Dogwinkle (Nucella canaliculata), found at the low water mark under tufts of rockweed along the jagged margins of the upper and lower bays. Their shell colors range from a pale white to a rusty orange. The shell sculpturing consists of about five rounded whorls including a surface decorated with strong revolving ribs, separated by deep grooves.

Another member of this family was the File Dogwinkle (Nucella lima). This species is not nearly as abundant as the others previously mentioned. The species name, which means "file," refers to the file-like, scaly cords adorning this mollusk. Its habitat includes rock crevices in the intertidal zone away from the action of the surf. All three species of dogwinkle are found along the Pacific coast from Alaska to California.

THE OMINOUS ONE: An eminent British paleontologist, Searles V. Wood, was honored by having a whelk genus named after him. The mollusk of such distinction is the Dire Whelk (Searlesia dira). It is a common scavenger found in all areas of the bay, especially the wave-washed shoreline near the mouth of the lower bay, adjacent to Chatham Strait. The species name dira, meaning "fearful" or "ominous," probably alludes to the gloomy gray color of this snail's shell. It feeds mainly on mollusks but will also eat fish, worms, or crabs. I found no other species of whelk; however, others may exist in various bay locations.

THE LAST FRONTIER: RUGGED YET SENSITIVE:

Alaska is a beautiful state and has many natural attractions to offer visitors and residents. The pristine waters and breathtaking mountains are unforgettable and in the many remote, rugged, and isolated areas in Southeast Alaska, it is interesting to discover the food web components. The environment may be considered hostile and the marine life is obviously hardy. If the environment is disturbed even these species can be impacted. Through an early understanding and appreciation of the Alaskan ecosystems, intelligent conservation attitudes will preserve this last frontier.

Reprinted from the UNDERWATER NATURALIST, Bulletin of the American Littoral Society 15(3):3-6, Aug. 1985

REVIEW:

THE INTERTIDAL WILDERNESS

by Anne Wertheim. Sierra Club Books, San Francisco, California. 160 pp., $25.00 cloth, $14.95 paper. Illustrated with color photos.

We have here a pleasant example of a book where the writing and the photography complement each other ideally. The photographs are beautiful — clear and full of action and detail. And the captions, most of them at least 200 words long, deal with the picture's content with great thoroughness. As if that were not enough, the book is designed carefully so that the picture and its description are either on opposite pages or the same page, so there is no frantic turning back and forth to get the writer's message.

Coverage is from Baja California up north to the southern part of Alaska, with special emphasis on invertebrate life of tidepools. There are 115 excellent color photographs.

Through the good offices of Nixon Griffis, the Littoral Society provided Anne Wertheim with funding to get this book started. We are pleased it turned out so well.

Reprinted from the UNDERWATER NATURALIST, Bulletin of the American Littoral Society 15(3):30, Aug. 1985

FROM THE ANNUAL REPORT OF THE AMNH

The 116th annual report (1984-85) of the American Museum of Natural History devotes four of its seventy-eight pages to news of the Department of Invertebrates, including a full page photograph of Dr. William K. Emerson and Walter Sage at work in the department, with trays of gorgeous cowries in the foreground. On page 25 there is the following abbreviated report:

> RECENT MOLLUSKS The ongoing study by William K. Emerson, Curator, on the zoogeography of the marine mollusks of tropical American waters resulted in the discovery of a living member of a genus of snail that was thought to have become extinct some 3 million years ago. The species, Pterorytis hamatus, is not known to exist in the Caribbean. But a specimen was found living off the coast of Ecuador. Apparently it survived in the eastern Pacific after being separated from other members of this genus by the rise of the Isthmus of Panama.

The work was reported in The NAUTILUS 99(1):14-17, January 1985: Murex hamatus Hinds, 1844, A Living West American Species Assigned to the Neogene Paciphile Genus, Pterorytis Conrad (Gastropoda: Muricidae).

Another paragraph in the annual report was headed MAJOR ACQUISITIONS, and announced that there were 68 accessions to the Recent mollusk collection. It could not be expected that all 68 accessions be listed, but singled out for mention was the worldwide collection of marine and freshwater species given by Dorothy and John Germer when they left the area to retire in Ohio. Also, the worldwide collection of shells, plus books, from Stanley Sokoloff; the two rare cowries given by Nathan Halpern - Cypraea guttata and C. langfordi - and the collection of marine shells given by Miriam and Edwin Hicks. Other beautiful accessions came from our Alice Barlow, Kay Vaught of Arizona, Ray Summers of California, Betty Jean Piech, and the estate of William E. Old, Jr.

Not all the accessions were of marine shells — Assistant Curators Neil H. Landman and Judith E. Winston added significant numbers of ammonites and bryozoans, respectively, to the collections.

Walter Sage has expressed his appreciation of volunteers helping with the chores between accession and display.

OBSERVING ZOILAS

J. Chandler and C. DuRoss have been collecting the Cypraeidae of Southwestern Australia for eight years, specifically the beautiful Zoila species found there. They report in La Conchiglia Magazine for May-June 1985 on their deep studies of Zoila rosselli (Cotton, 1948), the darkest of the Australian beauties. They have now been hit by the ban on removing Australian wildlife and products.

Chandler and DuRoss built themselves a remote control submersible that would operate to a depth of 300 feet and send up a Video picture of good black-and-white resolution. With that, over time, they built a good record of the life style and reproductive habits of rosselli. (This cowry grows to about two inches in length. -ed)

These are the wonderful things they learned:

At the egg stage rosselli is pinhead size, embedded in mucous within a cup sponge hanging upside down in a cave, with its mother sitting on it and turning the eggs every few hours. The mother instinct is strong: when the mother was dislodged from the brood she immediately returned to the brooding position.

Over five weeks the eggs swell to twice their original size and the mother's mantle distends greatly to cover them. At the end of this time the young steal away one night and those who do not get washed away by the current crawl around until they find their own host-sponge. Finding it, the young mollusk burrows through the surface, gets inside, and stays there until it has consumed the entire inside of the sponge.

The men could feel these sponges with their fingers and find the shells at the different stages of their lives. After about ten months they come out of the empty sponge and start eating the outside. They still have a year to go to reach mature breeding age and during that year they are fair game to octopuses and fish.

In her second year the female indicates her readiness for breeding by crawling higher on the reef and emitting what probably is a scent that attracts males from some distance away. Mating time is usually in the calm, late summer weather when currents are gentle. The mating pair crawls around at random during this time with no sponge favorites. They stay together for a week or two and the mating is by copulation. After that time the female leaves to find her right species of cup sponge for egg-laying, thus to repeat the breeding cycle.

From La Conchiglia, Via C. Federici. 1, Rome, Italy
May-June 1985, as reprinted in the Newsletter of the
National Capital Shell Club (83):11, Winter 1985.

CYPRAEA CRIBRARIA Linné, 1758 LAYS EGGS

R. T. Brown

While holidaying on North West Island (Great Barrier Reef) last June (1959), we saw Cypraea cribraria on their eggs.

We found these cowries under old coral which was encrusted round the outside with seaweed and was lying on sand patches which were constantly covered with water.

C. cribraria deposits her eggs in small crevices in the coral; she lays from 500 to 1000 eggs in capsules, oval in shape and a deep gold in color: she sits over the eggs and spreads her scarlet-red mantle over the little mound - a very pretty and interesting sight.

Excerpt: Australian Newsletter 7(25):2

NOTES ON ZOILA THERSITES

P. Trenberth

During collecting trips to the Sir Joseph Banks Group, the following points were noted: in 1959, during September, more than half the thersites taken were juveniles, but then from October to November all specimens were adult (to 75 mm), odd ones only indicating by the spire to be slightly juvenile. In October a specimen was found sitting on eggs deposited in a half-valve of an Equichlamys bifrons, the scallop shell making an ideal nest. The egg capsules were golden yellow in colour massed together by a gelatinous substance and each contained a single embryo. In January 1960, only one was observed sitting on eggs, but two juveniles, both in the bulla stage, were taken (it was noted that the young animals were a bright saffron yellow, contrasting with the black of the adults); then in April, of about twenty specimens collected, only one was found with eggs, its nest so well protected in a crevice of a rock that it was impossible to get at it: only three specimens have been collected since then, and all of them were adults.

The feasible deduction from these observations is that the cycle from the embryo to the adult is very rapid, probably somewhere in the vicinity of about twelve months.

Excerpt: Australian Newsletter 8(30)

NOTES ON NOTOCYPRAEA

Paul Trenberth reports two more species of Cypraeidae - Notocypraea bicolor and N. comptoni - sitting on their eggs, which were examined microscopically and described as follows: Of N. comptoni: Colour bright orange, oval in shape, length 3.5 mm, width 1.5 mm. The larval shell was evident with the typical "bulla" shape. The egg capsules were observed to be laid in a continuous string, with the eggs spaced about 2 mm. apart. There were 75 eggs altogether, and the whole string was coiled into a little heap to form a nest. The eggs of N. bicolor: Colour pale lemon, length 2 mm., width 1 mm. Number of eggs, 64. No shell development was noticeable.

Excerpt: Australian Newsletter 8(32)

At a meeting of the Victorian Branch of the Australian Malacological Society on September 19th, 1966, Miss F. Murray gave an account of the eggmass of Notocypraea comptoni (Gray, 1847) and described the development of the young through to hatching. Nearly 100 transparent, oval, 4 mm long capsules comprise the mass: each is joined to its neighbors by fine filaments and contains numerous orange-yellow yolk or nurse eggs which impart the overall colour of the mass. Only one embryo develops in each capsule: it feeds on the nurse eggs as it grows into a shelled veliger and through metamorphosis to hatching. The young cowries (protoconchs) emerged after two months: they appear as miniatures of the parent with their papillate mantle lobes meeting over their transparent, 3 mm bulla-like shells.

Australian Newsletter 14(55):8

TASTE ADVENTURES IN MOLLUSKS

Walter J. Eyerdam

[The late Walter Jakob Eyerdam (1892-1974) started as a cooper, studied mining, spent three years as a prospector, then became a devoted naturalist who collected from Alaska and Siberia to South America and the Solomons. The following article appeared in The shelletter of the no longer published Shells and Their Neighbors, No. 3, February 1961. -ed.)

It is not generally known that most mollusks, both marine and land species, are edible and are eaten extensively by primitive and oriental people. Of course when it comes to quality of flavor, they fall mostly into the category of the more standardized or well known edible species.

In certain parts of Europe, especially in some of the Latin and southern Slav countries and northern Africa, vineyard snails, especially the apple snail, Helix pomatia, has been cultivated so long that it is semidomesticated like the bees. They are raised in the vineyards. I have often eaten them in Germany.

Freshwater mussels formerly were an important food of the Indians, especially in the Mississippi Valley. The question is, how could they chew a mussel which when boiled is like chewing a piece of shoe sole? They were baked slowly underground like marine clams and perhaps macerated in a mortar before baking them. I have eaten Margaritana margaritifera falcata Gould with difficulty. They all have a rather muddy taste, but among half-starved people, that wouldn't matter much. I believe that if these mussels were macerated and baked slowly with a tenderizer and flavored properly, they would be rather palatable. Try it sometime and let me know how you make out. I'm not much of a cook.

Around Wainone Bay on San Cristobal Island in the Solomons, there is one of the largest tree snails in the world, which reaches about four inches in length. It is Placostylus cleryi Petit. They live as high as 200 feet from the ground and after a hurricane are eagerly sought by dogs and natives. The natives, after eating them, have a peculiar custom of saving or gathering the shells and placing them in a little pile along the trail.

When I was a member of the Whitney South Sea Expedition in 1929-31 exploring Western Melanesia, I frequently observed in certain villages and tribes, how important mollusks were as food among the coastal people. Freshwater Neritinas were eaten extensively by the jungle natives. At the villages of Hanabada, Hula, and Ellavalla west of Port Moresby, Papua, I saw little girls pick up every snail over one-third of an inch long, to make a soup. Tridacna gigas seldom is to be found near inhabited areas as it is eagerly sought for food. Most are obtained on isolated reefs or by diving.

As you may know, in the British Isles, whelks, Buccinum, and periwinkles, Littorina littorea L., are quite universally eaten as a snack. One often sees a London bobby or a cabbie with a penny bag of periwinkles, extracting the snails with a pin and eating them on the street.

I have seen freshwater mussels for sale in the fish market of Saigon, and in China and Japan you may be sure that the shells you buy from a dealer have had their occupants used as food.

In the tropics, I usually ate the animals of any clams I collected and often the snails as well. I have also eaten the Lewis Moon Snail, Polinices lewisii Gray, and many other large snails. The Oregon or Northern Hairy Triton (Argobuccinum oregonensis Redfield) is not edible. It has a nasty, bitter taste. It is a scavenger of putrid food. Most clams are good even in the non-R months, but oysters are flabby and insipid on account of the heavy drain of prolific egg-laying.

Until recently, I didn't know that the frilled purple Thais lamellosa was edible because I had tried it and found it bitter. I may have tasted part of the dye gland. In September on a very low minus tide at Alki Point, Seattle, I met three Chinese who had many Pailfuls of Thais lamellosa that they told me they were gathering for food. They didn't look for any other mollusks.

Harvey MacMillin, who was in south Chili in behalf of the U.S. Bureau of Fisheries, was skipper of the State Fisheries dredging boat, Rhododendron, until May, 1960. He was engaged primarily in the dredging and canning of clams for the State Fisheries. Any shells that he couldn't classify, he submitted to me and I usually ate the rare animals. In the early spring of 1960, MacMillin told me they had canned a half-ton of horse clams, Schizothäerus nuttalii Conrad and S. capax Swan.

The Japanese Army introduced the large African Snail, Achatina fulica, into a number of islands of the South Pacific for food. Because most of the islands are abundantly supplied with food from the land and sea, this snail was not relished by the natives although it is eagerly sought by the native Atayals of Formosa and undoubtedly would be an asset to some of the primitive natives of North Australia and New Guinea. Until recently in some of the French colonies of West Africa, there were strict game laws protecting Achatina achatina, largest of all land snails. These snails are relished by the natives and the French, and are sold alive in the village markets.

Americans being the best fed of all people, are as a rule quite choosy about food, having nearly always had an abundant supply and seldom forced to starve. It is quite different among most other nations, many of which through wars, crop failures, and overpopulation, have often been reduced to eating anything that would sustain life.

Of course, the traditional peasant in many countries would never eat food that he wasn't accustomed to unless forced by starvation. Until the great famine and revolution, the Siberian peasant would not eat a rabbit. The Englishman wouldn't eat the introduced American red squirrel which he called a tree rat, and let them multiply by the millions until the meat ration was reduced to almost nothing per capita.

I can remember when I was a boy in Seattle, one could buy a big silver salmon for ten cents, and most people would not eat a dog salmon because of the name. They would eat only salmon, halibut, trout, cod, and herring. Most of the other fishes were considered unfit to be eaten.

Most sea life is edible. There are several families of fishes that have poisonous members, but usually they are rare. Most crustaceans are edible. During the last couple of years I have been eating all the limpets I could collect, and find them of good flavor when seasoned and fried. Barnacles are also as good as crabs, especially the big one, Balanus nubilis. Gooseneck barnacles used to be a common item in the San Francisco fish markets. Maybe still are. One of the greatest sea delicacies in the South Pacific, especially Samoa, is the Palolo worm.

California sand fleas are said to be delicious. There is an item you may try also, and tell me how you like them!

BUT WHAT ABOUT THE RADULAE?

Upon his return from a stay in Spain some years ago, Karl Jacobson described a shelling stop at a Mediterranean beach. Other visitors to the beach were picking limpets off the rocks and eating them on the spot. Although Karl was as interested as Walter Eyerdam in sampling the mollusks, he warned that eating numbers on the spot could result in the formation of "radula balls" which could clog the digestive system. In many genera — including the Chitons, the Nerites, and the Limpets — the radulae are of considerable size compared to the size of the mollusk and rather easily extracted, as is the coiled radula of the periwinkle. He recommended that if you can't cut it out, spit it out.

D. Raeihle

CONCH RESEARCHER RECEIVES SHELL CLUB GRANT

Florida's supply of the edible Pink Conchs (Strombus gigas) is dwindling because of overcollecting in the Lower Florida Keys. The State recently banned the collecting of live specimens of the giant conch in Florida, and at the University of Miami several research projects are underway to improve the mariculture of this food mollusk.

This year's Karl Jacobson Scholarship for Molluscan Studies offered by the local Astronaut Shell Club has been awarded to Miami University student, Darryl E. Jory. The $500 grant will go towards helping Mr. Jory study the shell strength and survival abilities of young, hatchery-grown conchs. The award was formally announced at the 1986 Shell Show being put on at Melbourne's Auditoriam from Friday, January 24 to Sunday, January 26.

R. Tucker Abbott
Melbourne, Florida

MAGNA AND MINI

The largest bivalve mollusk is Tridacna gigas of the Indo-Pacific, with a size record of 4 1/2 feet in length. Its shell is used for fonts and decorative "statuary," its flesh is used for food.

The smallest bivalve mollusk was described by Donald Moore in his paper, Small Species of Nuculidae from the Tropical Western Atlantic, in Nautilus 91(4):119-128. It is Condylonucula maya, mature at only .5 mm, and discovered in bottom samples of calcareous sediments in the western Caribbean. Next larger are Condylonucula cynthiae, maturing at .6 mm, and Nucula calcicola maturing at about 1.5 mm.

dr

NEW YORK SHELL CLUB ANNUAL SOCIAL AND AUCTION

DATE: SUNDAY, April 13, 1986

TIME: 2:00 p.m. (Doors will open at 1 p.m. so that donations and supplies may be brought in, and tables arranged.)

PLACE: BROADWAY DANCE STUDIO
31-08 Broadway
Astoria, N.Y.

(travel directions below)

DONATION AT THE DOOR: $2.00 per person

AUCTION: A selection of fine shells; excellent values, lots of fun.

BARGAIN TABLE: Many good shells, some REAL BARGAINS: craft materials, coral, oddities, etc.

RAFFLE * DOOR PRIZE(S) * REFRESHMENTS; wine, cheese, snacks,coffee, munchies, cake, etc.

- - - - - - - - - - - - - - - -

We need your help to make our party a success. Take a look at your accumulation of shells and shell-related items - literature, shelling aids, etc. for any extras to donate for the auction or the bargain table. We also appreciate donations for the refreshment table - members' culinary specialties are always a big success!

COME, AND BRING A FRIEND OR TWO!

- - - - - - - - - - - - - - - -

DIRECTIONS: The studio is on the 2nd floor of 31-08 Broadway, near the southwest corner of Broadway and 31st Street, Astoria, Queens.
SUBWAY: The subway stop is the BROADWAY station of the BMT Astoria line. from Manhattan take the BMT Astoria line, or the IRT Flushing line to QUEENSBORO PLAZA and transfer to the BMT Astoria line. From the Jamaica area, take the IND to ROOSEVELT AVE., transfer to the IRT Flushing line, then transfer to the BMT Astoria line at QUEENSBORO PLAZA.
BY CAR: from Manhattan: QUEENSBORO BRIDGE to NORTHERN BLVD. to 31st St., left on 31st St. (under the elevated) to Broadway. Also, TRIBORO BRIDGE to 1st exit in Queens, turn right on 31st St., to Broadway. from LONG ISLAND: Grand Central Parkway to last exit before Triboro Bridge, Astoria Blvd. to 31st St., turn left under the elevated, to Broadway, (about six blocks.)

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These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Items and articles for publication in the NOTES should be sent to the Editors.

The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK
SHELL CLUB

FOUNDED JAN. 1949

SHELL AUCTION AND SOCIAL - 1986

Again our Annual Auction and Social has been a large success. This is in no small way due to the many members who were willing to help in many areas, in large and small degrees to assure another good venture.

The following names appear in no particular order and I pray I have not omitted anyone. If I have, I beg your forgiveness and encourage you to let me know.

With much appreciation to each and every one of you from our entire NY Shell Club ! ! !

Carol Lindsay, Chairperson

HOSTESS: Dorothy Jensen - Broadway Dance Studio, Astoria

AUCTIONEERS: Marty Gill, Sol Weiss, assisted by Chuck Lindsay

ASSISTANT CHAIRPERSON: Theta Lourbacos

BARGAIN TABLE: Frank Nelson, Edna Christensen

SHELL SORTING: Al Scarpetti, Mike Werner, Theta Lourbacos, Walter Sage

LETTERS OF SOLICITATION AND THANK YOU: Edna Christensen

SETTING UP, CLEANING UP AND GENERAL HELPING OUT: Mike Werner, Frank Nelson, Nancy McTiernan, Rachel Lindsay, Chuck Lindsay, Bill Lindsay,Jr., Bill Lindsay,Sr., Edna Christensen, Linda Ciaston, Mary Anne Bastek, Theta Lourbacos, Irving Hoppenwasser

REFRESHMENTS: Kathy Donnelly, Nancy McTiernan, Theta Lourbacos, Al Scarpetti, Nick Katsaras, Monique Caubere, Dorothy Jensen, Mary Anne Bastek, Linda Ciaston, Rachel Lindsay, Chuck Lindsay

DEALER DONATIONS: Sol Weiss, Shamaron Shells (Marty Gill), Seashells Unlimited, Mal de Mer Enterprises, Ben Jane Arts, Phillip Clover, Richard Kurz

DONATIONS OF ORIGINAL ART WORK: Arlen Riemann, Al Scarpetti

MEMBER DONATIONS (SHELLS, BOOKS, ETC.): Walter Sage, Ed Cowles, Leon and Ruth Juster, John Bockelman, Herb Goetz, Mike Werner, Edna Christensen, Nick Katsaras, Frank Nelson, Ed Dunlap, Monique Caubere

MONETARY CONTRIBUTION: Mathilde Weingartner

NEW YORK SHELL CLUB NOTES No. 299 June 1986 Page 1

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 419, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETINGS: JUNE 8, 1986, at 2:00 p.m.

Walter Sage, American Museum,
"Describing a New Species"
(postponed from the May Meeting)

also, **Election of Officers for 1986-87 (see p. 19)**

PROPOSED SLATE: President -
Vice President -
Recording Secretary - Milton Werner
Corresponding Secretary - Edna Christensen
Historian = Nick Katsaras
Treasurer - Theta Lourbacos
Directors: - Fred Cannon, Mary Anne Bastek,
Walter Sage
Librarian: -

Additional nominations from the floor will be accepted.

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HENRY VAN DER SCHALIE

We are extremely sorry to report the death on April 15th of Dr. Henry van der Schalie, who succumbed to cancer at age 79.

"Van" was associated with the Museum of Zoology, University of Michigan at Ann Arbor, for all his adult life. While a graduate student he worked as a museum assistant; he became Curator of Mollusks in 1944 from which post he retired in 1977 with the title of Professor Emeritus of Zoology.

His bibliography spans fifty years. In the early papers the subject of freshwater bivalves is dominant; the first title suggesting what was to become an absorbing work headed a small paper published in 1945: "Further Notes on Schistosomiasis." Dr. van der Schalie was to become a worldwide authority in the field of parasitism and worked with and for the United Nations World Health Organization, as field worker and/or consultant, over a period of thirty years. He was prophetic in his 1960 paper, "Egypt's New High Dam — Asset or Liability?" [Biologist, 42(3-4):63-70]. The latest of his many papers related to this work was "Aswan Revisited" which appeared in 1981 in BioScience 31:420.

For some autobiographical notes, read his informal article, "Is professional training too restrictive or can one earn a living working on snails?" in New York Shell Club NOTES 285.13, December 1982, reprinted from Calvin College Spark.

We join his many friends and associates in extending our deepest sympathy to his wife, Annette, and to their sons and families.

Dorothy Raeihle

HIGHLIGHTS OF THE JANUARY MEETING

The 342nd meeting of the New York Shell Club was a social gathering in the home of Past President Fred Cannon, on the afternoon of January 12th.

Fred's home, not far from the downtown area of Brooklyn, is one of the many much-admired attached brownstones that grace the west end of the borough. Fred had left intact his Christmas decorations - a huge tree that showed his taste for both venerable and handmade ornaments, and on every available surface and point of attachment, Christmas figurines old and new, fir sprays, seasonal artifacts, etc.

Competing for the eye was his shell collection, much of it on display in glass-fronted cabinets. Collected with discernment over many years, it is a fine array of magnificent specimens.

As people finished goggling at cases and drawers of shells, and examining Christmas ornaments and decorations, they drifted into the dining room to talk it all over while enjoying the wines and cheeses that Fred had set out. Gracious to the end, our host forbore frisking his guests as they departed.

Milton Werner, Recording Sec'y

HIGHLIGHTS OF THE FEBRUARY MEETING

President Mary Anne Bastek announced that Carol Lindsay had agreed to serve as chairman of the committee that will prepare for the auction meeting in April, and that Marty Gill will again serve as auctioneer. Carol reported that Ed Cowles had made the first donation of auction material - a book and two Cypraea. She added that more volunteers will be needed, and asked members to bake or donate cakes.

Mary Anne announced that the speaker at the March meeting would be Alex Tabakotani. Walter Sage noted that Dr. Walter Jacobs, one of the founders of the club, was present. Mary Anne introduced a new member, Kathy Donnelly, and visitor Helen Graesdal.

Nick Katsaras read from a recent New Jersey newspaper an account of a snail race that was held in Spain.

The speaker was Mary Anne Bastek, who showed and commented on slide photos made during a sailing and collecting trip in the Caribbean in February. She and Carol and their husbands, and Linda Ciaston, along with two others, rented a 39' sailboat for a cruise that took them to St. Thomas, Tortola, Virgin Gorda, Peter, Norman and Buck Islands, and back to Charlotte Amalie. Their slides covered sightseeing and collecting spots, and included not one but several sunsets. One of these, of course, was held back to provide the traditional finale.

The door prizes were a Cypraea tigris, unusual for its pale color, won by Carol; a Voluta kieneri won by Herb Goetz, and a Hydatina physis, won by Nick Katsaras.

Milton Werner, Recording Sec'y

HIGHLIGHTS OF THE MARCH MEETING

Vice President Carol Lindsay presided over the meeting in the absence of President Mary Anne Bastek.

It was noted that a few members had met in a workroom of the American Museum's Department of Mollusks to sort some of the shells that will be offered in the April auction. A sign-up sheet was available for the names of members who plan to make further donations to the auction. Three dealers have responded to requests by saying that they will make donations.

Speaker Masao (Alex) Tabakotani, whose work has brought him from Japan to the United States for a second extended stay, and who joined the New York Shell Club ten years ago during his first stay, opened his presentation by noting that he has been a member of the Conchological Society of Japan for twenty-five years. He pointed out that the molluscan fauna of Japan has been determined, in part, by the fact that both warm and cold ocean currents touch its shores. For his talk he had selected fifty slides showing shells from five collecting localities wide-spaced along Japan's coast, in the south and the southerly Pacific areas.

Most of the attractive specimens he showed had been collected by fishermen trawling at 600-800 feet depth. His comments on the shells included the note that one of the Pleurotomaria was of a species known by only "four and a half" specimens.

Milton Werner, Recording Sec'y

REVIEWS:

ANALYSIS OF MUSSEL (Mytilus californianus) COMMUNITIES IN AREAS CHRONICALLY EXPOSED TO NATURAL OIL SEEPAGE

by Dale Straughan. Publication 4319, American Petroleum Institute, Washington, D.C., undated (received April, 1985). 115 pages, 4 plates, 24 figures, 14 tables, 8 appendices, no price indicated.

This report is the result of a study of the possible effects of natural oil seepage on the Mytilus californianus communities that dominate lower rocky intertidal areas along the west coast of North America. Three areas near Santa Barbara, California, were selected for study sites: Goleta Point, with high exposure to natural oil seepage; Carpinteria, with intermediate exposure; and Reef Point, with low exposure to natural oil seepage. The main thrust of the study was to determine whether the structure of these communities varied with the amount of petroleum naturally occurring in the environment of these mussel communities.

At each of the selected localities, upper and lower intertidal sites were sampled. Sampling was carried out by collecting five core samples (300 square centimeters each) from the lower and upper intertidal areas. Various technical analyses were performed on these thirty samples, with the result that a definite correlation between petroleum seepage and the change in the communities was established. The data also documented that each of the sampling sites had its own characteristic fauna and flora, and it was further recognized that individual species distributions were more closely related to the type and amount of sediment within the mussel communities and intertidal height rather than exposure to naturally occurring petroleum. These findings point out the complex nature of marine communities, such as the intertidal Mytilus californianus associations.

Some general observations on the mollusks from these communities prove to be of interest. Of the 160 invertebrates recorded, 37 were mollusks. Only 25 invertebrate species were found at all 30 sites, but they accounted for over 90% of the organisms collected; nine of the 25 invertebrate species were mollusks. Among the genera represented were Collisella, Epitonium, Littorina, Nucella, Mytilus, Hiatella, Kellia, Lasaea, Adula, and Mopalia. The most numerous organism collected was the bivalve Lasaea subviridis Dall, 1899, which comprised almost 65% of the animals collected.

Walter E. Sage

THE TRIBE ALASMIDONTINI (UNIONIDAE: ANODONTINAE), Part II: Lasmigona and Simpsonaias.

by Arthur H. Clarke. Smithsonian Contributions to Zoology No. 399, Washington, DC, 1985. 75 pp., 22 figures, 14 tables, no price indicated.

This is the second part of a monographic study of an endemic tribe of North American Unionidae. The first part of this study, published in 1981, covered the genera Pegias, Alasmidonta, and Arcidens. This final paper treats seven species and one subspecies in the genera Lasmigona (subgenera Lasmigona s.s., Alasminota, and Platynaias) and Simpsonaias. Addenda provide additional information on some species covered in Part I.

For each taxon discussed, data is provided on taxonomy, morphology, life history, and distribution records. The morphological information includes descriptions of the shell, anatomy and, where possible, the glochidium. Statistical tables, detailed drawings of shells, distribution maps, scanning electron micrographs of glochidia, and a large bibliography complete this volume.

Despite the mass of research here compiled, the author notes that there is a lack of anatomical data on six species and subspecies of these naiads, and on glochidia for nine. The natural hosts (presumably fish) are not known for sixteen species and subspecies. He further states that a number of the taxa in this monograph appear to be either endangered, threatened, or recently extinct. It is to be hoped that this welcome contribution to unionid systematics will encourage other workers to add to the body of knowledge of this group of North American freshwater mussels.

Walter E. Sage

The GENUS CLYPEOMORUS Jousseaume (Cerithiidae: Prosobranchia)

by Richard S. Houbrick. Smithsonian Contributions to Zoology No. 403: Washington, DC, 1985. 131 pp., 62 figures, 33 tables, no price indicated.

The work here reviewed is the latest result of the author's continuing study of the marine prosobranch family Cerithiidae. In this report, the genus _Clypeomorus_ Jousseaume, 1888, is monographed, and we are presented with a taxonomic discussion and description of its type species, _Clypeomorus bifasciata_ (Sowerby, 1855) (=_C. clypeomorus_ Jousseaume, 1888. This genus is shown to live on hard substrata in tropical intertidal habitats in the Indo-Pacific and its members are herbivores with shells that are low-spired and variously sculptured, often with a beaded design.

Twelve living species, three subspecies, and three fossil species are recognized. Described as new are _C. admirabilis_, from the northwest coast of Western Australia; _C. purpurastoma_, from East Africa and the western Pacific; and _C. bifasciata persica_, from the western side of the Persian Gulf. The name _C. nympha_ is given to the preoccupied _Cerithium variegatum_ Quoy and Gaimard, 1834. Several taxa are transferred for the first time to _Clypeomorus_, and several formerly referred to this genus are removed.

For each taxon recognized as living, the synonymy, description, ecology, intra- and inter-specific variation, biogeography, fossil records, and a list of material examined are discussed. A detailed analysis of character states derived from shell, radula, and anatomical features was made, and this data was used to demonstrate relationships between species. Well-executed black and white photographs of shells and radulae illustrate the author's conclusions and help the reader to understand the relationships between the species. Distribution maps, a list of references and an index complete this important addition to the literature on shallow water Indo-Pacific gastropods. All those interested in marine mollusks would do well to obtain and use a copy of this exhaustive monograph.

Walter E. Sage

(For Contributions to Zoology....., inquire of the Division of Mollusks, NHB-E, Smithsonian Institution, Washington, DC 20560. -Ed.)

DREAMS HAVE WINGS

by Ethelyn Hurd Woodlock. Privately printed, 1985. 204 pages, 53 paintings in color, 113 illustrations and photographs in black and white. 9 1/2" x 12", hard bound. Price $40 plus postage from the author at 1100 South Belcher Road, #737, Largo, Florida 33541.

Interspersed in the text are many examples of the sensitive lyric poetry of the artist, demonstrating her creative talents beyond painting. A number of the paintings include shells — almost sort of a trademark.

Ethelyn, known as a friend and as a shell collector to members of the New York Shell Club, does a splendid work in this autobiography, revealing the many facets of her life as wife and mother, as well as artist and poet. My personal recollections of her are of someone always friendly, kind, and down to earth, having never let her reputation as an artist lead her into isolation from anyone.

Her profession was portraiture, but she was also masterful with landscapes, seascapes, still life, and miniatures. She has taken many awards, both regional and national. Her real magic lays, however, in her ability to express herself with a certain elan in her sometimes trompe l'oeil, sometimes surrealist vision of the world. To develop this talent, Ethelyn spent a lifetime of hard study and work, starting as an artist from childhood on. Working mainly with casein painting overlaid with translucent colors over a white ground color lent her paintings a jewel-like glow. Thus, even when the subject matter may not be to one's personal tastes, the beautiful color enamel finish of her paintings is aesthetically most pleasing. As though painting wasn't enough, she undertook frequently to making her own frames and often let the painting spill over onto the frame.

Ethelyn's interest in psychic phenomena naturally led into owning a house occupied also by ghosts and ESP phenomena This activity made for much interesting publicity, both for her work as well as the "ghost" house, a fine large home in New Jersey where she also kept house and brought up her family. But her story must be read to be appreciated: her disappointments, sometimes frustrations, as well as her hopes, ambitions and successes.

Another early interest brought her also into the field of collecting sea shells as a hobby which inevitably, as with other members of the New York Shell Club, became a lifetime passion. Having travelled the same path both as artist and shell collector, this reviewer knows from first hand experience these two facets of her life.

As a whole, she relates with great candor her early childhood, teenage life, dating, courtship and marriage, when the last traces of Victorian mores still inhibited the accepted behavior of woman and her place in society. Her relations with her mother, husband and children reveal much about her outside of her career. It is indeed a measure of her determination and fortitude to circumvent all the problems that beset humans, but especially so for the creative artist. That she succeeded in all that she attempted is surely evident in this most delightful autobiography, a testimonial to a genuine 20th century heroine.

Anthony D'Attilio, 1986

Anthony D'Attilio

THE PUZZLING LIFE OF THE BAY SCALLOP

is the title of an article by Jeffrey G. Jones "Maritimes" 30(1): 14-16, February 1986. "Maritimes" is the publication of the University of Rhode Island's Graduate School of Oceanography, where researchers are studying the biochemical and physiological adaptations of the bay scallop, Argopecten irradians (Lamarck, 1819). The following material is extracted from the above-named article:

Behavioral responses of Argopecten irradians are initiated when special receptors detect environmental changes. The shimmering blue eyes on the margin of the bay scallop's mantle can detect sudden changes in light intensity, such as the moving shadow of a fish or crab. Tentacles around the mantle margin detect tactile and chemical stimuli from potential predators such as starfish or oyster drills. If escape or avoidance is warranted, the scallop's repertoire varies from slightly closing its shell to swimming vigorously for short distances. Swimming is achieved by repeated, forceful contractions of the adductor muscle; the quick, strong contractions squirt water out of the mantle cavity and propel the scallop upward and forward through the water.

The bay scallop Argopecten undergoes an interesting seasonal pattern of growth which reflects physiological responses to environmental changes. It spawns in June and July in Rhode Island, and the planktonic larvae eventually attach to eel grass blaces or other objects and develop into small scallops about 15 millimeters (0.6 inch) in diameter by the end of August. Rapid growth in the fall of their first year results in about a 30-fold increase in body weight between early September and mid-December. Water temperature drops during this time from about 22° C to 10° C, and for the next four or five months may drop as low as -2° C (in very cold years) in Rhode Island salt ponds, resulting in no further scallop growth until late April or early May. As the temperature gradually increases above 7° or 8° C, the scallops' hermaphroditic gonad (bisexual reproductive organ) begins to grow at a tremendous rate. Gonad mass increased nine to ten times in just five weeks according to measurements we made in 1984. All other organs of the bay scallop grew at a much slower rate or did not grow at all. (Bay scallops in other geographical regions exhibit growth and reproductive patterns which are distinctly different from those seen in Rhode Island. For example, those in North Carolina and Florida reproduce at different times of the year under different environmental conditions.)

Beginning in September, the year-old bay scallops go through another period of spectacular growth, increasing in weight about 2.5 times before the temperature falls in mid-December. The adductor muscle triples in weight over this period. The scalloping season in Rhode Island, however, opens in early October and a large proportion of the animals are taken within a very short time. If the scallops were left alone until late November or early December, the size of a scallop might easily be doubled with no loss of taste and no increase in harvesting effort.

Following this rapid growth in the fall, the second-year scallops not only stop growing, but actually lose about 40 percent of their weight by their second May. Mortality during this period is high, leading to a total life-span of only 20 to 22 months. Relatively few animals survive for a second spawning season.

Continuing research at URI's Graduate School of Oceanography is directed toward many basic biological questions, spanning many areas of current biological interest. The bay scallop is not only an important economic and recreational resource but is biologically interesting and well suited for scientific study. It also lives in a restricted environment which is often altered by human activities. Research on the bay scallop will help answer some basic biological questions as well as provide information to help in the management and to ensure the survival and success of this ecologically and aesthetically valuable species.

* * *

Meanwhile, south across Long Island Sound, Sea Grant Researchers at the Marine Sciences Research Center at SUNY Stony Brook were making parallel studies, working with populations of Argopecten irradians in the famous scallop grounds of eastern Long Island. Dr. Monica Bricelj and Dr. Robert Malouf were studying scallops from five sites, and checking to see if there were differences in spawning, growth, etc. between populations of neighboring embayments. They did indeed find an interesting variation pointing to the importance of temperature constants. We extract from the report, "Researchers Probe Bay Scallops," which appeared in Sea Grant Institute's publication, "Coastlines," Summer, 1985:

Scallops from two of the sites, Barcelona (3 meters deep) and Sag Harbor (1 meter deep), exhibited significant differences with respect to their timing and rate of spawning, mean shell height, and pattern of post-spawning adductor muscle growth. The deeper site was roughly 2^{o}-3^{o}C colder and presumably experienced a more constant temperature regime than the shallower site.

Sag Harbor scallops began to spawn in early June and completed most of their spawning within one week. After spawning, the muscle weight for a standard size animal increased sharply until July 25 and then gradually declined over the fall.

Life was quite different for the Barcelona scallops. They began to spawn about two weeks later than their shallow counterparts and their spawning continued through August. Thus they had a more gradual decline in their gonadal tissue weight suggestive of a more extended spawning season. Barcelona scallops did not reach peak adductor muscle weight until the end of October. In fact, the mean muscle weight for Barcelona scallops increased by at least 38% between September 27 and October 23.

So what does all this mean? Well, it could indicate the answer to preventing poor scallop fishing seasons like the one we had last fall when shucking houses refused to accept bushel after bushel of undersized scallops.* If the opening of the season were postponed in certain areas from the second week of September to the end of October, hundreds of thousands of dollars could be saved.

* * *

[* The minimum legal size at which the bay scallop may be taken is two and one-quarter inches measured from the hinge to the middle of the bill (=ventral edge). The usual width of a scallop of this height is two and one-half inches.

In September of 1985, officials in Southold postponed the commercial scallop season until November 1st in town waters. On May 12th, 1986, we were advised that the opening of the season for taking scallops in Babylon town waters is at present October 15th; closing date is April 1st.
—DR]

EGYPTIAN CONSERVATION LAW NOW IN EFFECT

The entire text of Egypt's new statute, "Law concerning natural protectorates 102/1983," is reprinted on pages 599-604 of issue 52 of LEVANTINA, published by the Israel Malacological Society and the Municipal Malacological Museum, Nahariya, and edited by Henk K. Mienis. We refer you to this publication in our club's library for details of the law (including penalties for offences). The following pertinent information was extracted from the introduction, from Article II of the law, and the postscript by the editor:

The Arab Republic of Egypt contains areas which are bestowed with beauty of nature and rare species of animals and plants, especially in Sinai, in the Red Sea, and on the North Coast of the Western Desert. Most of these species are endangered with extinction in Egypt because of human activities associated with development. Studies undertaken by the International Union for Conservation of Nature and Natural Resources have indicated that a number of plant and animal species are completely extinct in Egypt, while others are endangered.

Based upon these facts, the concept of having a national law to specify certain areas as nature reserves (protectorates) was conceived. [Tentatively designated as reserves were certain mountain, desert, coastal and inland water areas. -Ed.]

Article II (in part):

In particular, the following acts are forbidden:
- Catching, transporting, killing or disturbing wildlife;
- Damaging or removing any living organisms or natural features and resources, such as shells, corals, rocks, or soil for any purpose;
- Damaging or removing plants from the protected area;
- Spoiling or destroying the geological structures (and other features) of areas serving as natural habitats and breeding areas for plants and animals;
- Introducing foreign (non-indigenous) species of biota into the protected area;
- Polluting the soil, water, or air of the protected areas in any manner.

* * *

A postscript to the Egyptian's Conservation Law

The endorsement of the law by President Mubarak is in my opinion a first step in the protection of some of the most important natural habitats found in Sinai: the famous coral reefs of Ras Muhammed and the shallow-water lagoon of Bardawil. Both areas are of great international importance not only from the viewpoint of wildlife conservation in general but also for the conservation of certain molluscan species in particular.

Ras Muhammed is, for example, one of the very few localities where the extremely rare, endemic Terebra castigata has been found. In addition, the cracks near its southern tip harbour an enigmatic Diodora species, which will be described in the near future.

At the other hand, the shallow-water Bardawil lagoon at the Mediterranean side of Sinai is the first stop for many Erythraean species which succeed in traversing the Suez Canal and try to establish themselves in the Mediterranean.

That Egypt is willing to pay more attention to nature conservation is also apparent from the recently established Egyptian Society for the Conservation of Ras Muhammed. Among others, it promotes the establishment of a Ras Muhammed National Marine Park.

I hope sincerely that both the Law and the Society may reach their goals soon.

Henk K. Mienis

TIDE CHARTS AND OTHER KNOWLEDGE

You can buy a book of tidal predictions for the world's main shorelines and it will be fairly accurate, but other things affect those tides besides the well known effects of sun and moon.

A one-inch change in barometric pressure can let tides rise by a whole foot. High shoreward winds can double a high tide or kill a low one. Add these factors to tide table information.

Tidal ranges vary enormously. In the eastern half of Florida Bay there is practically no tide. Indentations in the eastern U.S. coast have higher and lower tides than the flat or protruding coastlines, ranging from 3 feet or less down south to as much as 8 feet where Georgia dips inward, to 5 feet where New York-New Jersey coasts do this, on to upper New England and finally the Bay of Fundy where the tide range runs to a full 50 feet!

Since the moon rises about 50 minutes later each day, the normal high and low tides come about that much later as well. But in Tahiti it's different: the two tides come without variation, high tide at noon and midnight, low tide at dawn and dusk, no delay now and never has been.

Tidal ranges are higher and lower when the moon aligns differently. When the sun and moon are in line the "spring" tides come, not related to season at all. When they are not in line the "neap" tides come, usually less. "Spring" tides occur at full moon and new moon periods.

You can have an experience if you go out in a small boat to catch an extreme low tide and find a strong wind blowing from shore after you get to an offshore island out a ways. You can have a sheller's dream until you try to come in. The channel and flat you left to go out may be high and dry and you can wait several hours for enough water to get the boat back to shore!

From the Newsletter of the National Capital Shell Club, page 18 of issue 84, Spring 1986. Joe C. Hayes, Editor

TIDE TABLES

The United States Department of Commerce publishes the books of tidal predictions mentioned in the above article. There are four:
(1) for Europe and West Coast of Africa (and the Mediterranean),
(2) for the East Coast of North and South America (and Greenland),
(3) for the West Coast of North and South America (and Hawaii), and
(4) for the Central and Western Pacific Ocean and Indian Ocean.

Send for an order form to: U.S. Department of Commerce NOAA, Distribution Division C44, National Ocean Survey, Riverdale, MD 20840.

dr

SEDENTARY SHELLING IN A GOTHAM GALLERY

by Harry G. Lee

As I emerged from the Williams Club early that February day I was greeted by a burst of arctic air which drove me back into the ancient brownstone with more than equal vigor. The New York winter was an unexpected jolt to my marginal wakefulness after such a short night's sleep. I hadn't fully realized how Florida-acclimated this expatriate Yankee had become until I attempted, however briefly, to ply the streets of midtown Manhattan without the benefit of an overcoat. As it happened, this was the same garment which lent its service during my four years' residence in the borough two decades earlier. How soon we lose touch!

Minutes later I stealthily passed the reception desk, where the staff was doubtlessly still snickering at the shivering rustic from Jacksonville. The ensuing trek was more sustained and successful as I reached a most unpretentious building some 14 blocks south, just off Madison Avenue. Although I had the address in hand, I nonetheless walked past the doorway twice. Swann Galleries was on the fourth floor of what appeared to be a dingy warehouse.

Several months earlier I had read in the New York Shell Club NOTES (297:13) that a fine collection of rare and antiquarian (mostly both) shell books belonging to Dr. and Mrs. Jerome Schweitzer was to be auctioned soon. The night before the planned event I hopped a Piedmont Supersaver to my birthplace (Newark, New Jersey) and reached New York City shortly after 1:00 a.m. Today was the day, February 27th, and, as I expectantly stepped off the elevator, I slowly drank in the scene. The "Galleries" is about the size of a basketball court; lots of bookcases, desks, tables, display cases, but mostly empty space. In the far corner was a facade of bookshelves containing the fare of the day. I joined about a dozen apparent connoisseurs and went right to work. My auction program had arrived a fortnight earlier and had already received an exhaustive review. I carefully thumbed Martini's Conchylien-Cabinet (volumes 1-10), DeKay's Zoology of New York (parts V-VI), Reeve's Conchologica Iconica (volumes 1-10), Historiae sive ... conchyliorum ... by Martin Lister, Manual of Conchology (volumes 1-17) by George W. Tryon, and several other works up to three centuries of age. What an awesome display it was! I had never even seen the works of Lister (1770), or Buonnani (1684), or Rumpf (1711), or Born (1780) firsthand. These and several other offered iconographies are absolutely incomparable. Sowerby's hand-tinted lithographs in Reeve (about 1400 of his 2727 plates were offered) rank among the finest natural history illustrations ever. Malacologists simply cannot conduct taxonomic research without Martini, Reeve, or Tryon. Carl von Linné referred to illustrations in Lister, Buonnani, Rumpf, and d'Argenville (also offered) for most of the nearly 800 species of mollusks he described.

Well, after more than an hour of this excitement, I called it quits. As my eyes slowly accommodated to distant vision, I donned my full-length tweed with special deliberation and set out for Third Avenue and points north. Gulping exotic snacks (a bagel and a handful of English chestnuts, I pressed on downwind to pay a visit to Veronica Johns, proprietor of "Seashells Unlimited," a place to which I have made pilgrimages (usually in better weather) since my childhood for inspiration, fellowship, education and, of course, the latest shell gossip. The lady of the house was in fine spirits, and the time went fast, as always. The shop's atmosphere and decorum hadn't changed much in over thirty years, and I again felt the rumblings of the youthful fascination that this place had fostered. From what Veronica had heard, there should be a fair turnout of local conchologists at the auction, which, as my watch said 1:00 p.m., was suddenly fast approaching.

The "Galleries" had a different look at 1:30 when the auction promptly began. About a dozen rows of folding chairs had replaced the tables at which we'd made our morning's sampling of the wares. An orderly, heterogeneous crowd of about 60 was assembled before the auctioneer's dais. I recognized only five other "shell people" (Don Pisor of San Diego, Jerry Harasewych of Maryland, and a Boston contingent of Barbara Elliot, Mathilda Duffy, and Gary Rosenberg). Neither Jerry nor Gary was appearing in an "official" capacity for their institutions - a fact I found somewhat reassuring. I gathered that the remainder of the folks were bibliophiles, mostly of a proprietary bent. The "Galleries" auctioneer, Denise Bethel, rapped a stone no bigger than one of those English chestnuts on her desk top, and it was nonstop for about two hours. With Swann Galleries' president, George Lowry, bidding for the "mail" absentees as well as volleys of bids from at least three telephones across the room, the audience was well advised to pay close attention to each raise and retrieve his numbered bidding paddle with dispatch. The proceedings were totally free of hyperbole - just the lot number, the name of the work with or without a brief description, and off to the races. Average disposition time was an incredible 30 seconds per lot. Numbers 35 through 97 of the total 252 (in order of presentation) were the conchological works and were presented in alphabetical order by author. Without a doubt they produced the most spirited bidding and most of the highest hammer prices. This notwithstanding, Jerry, Don, and I met with measurable success, but the majority of the stuff went to people who seemed to be "outsiders," a few in particular. The fate of their acquisitions is a source of conjecture but I, for one, rue at the prospect of their disuse and shudder at the spectre of some being disarticulated for wall trappings.

As we settled up with the clerks, our group of a half-dozen hearties formed and shortly adjourned to a Madison Avenue coffee shop to review the affairs of the day and otherwise catch up. After too short a rendezvous we disbanded and headed in various directions. As I rode the bus to Newark, I had the feeling that this was a very special day. The odor of naphthalene from my overcoat had almost dissipated as I contemplated the prospects of some good reading by a warm fireside in the days and years to come.

IDENTIFICATION DAY AT THE AMERICAN MUSEUM

Museum scientists from several different departments will be on hand Saturday, June 14, to help Museum visitors identify objects found anywhere from the top of a high mountain in an exotic land to a neighborhood junk heap. ID DAY will take place from 1:00 to 5:00 p.m. in the Dana Education Wing, first floor. For additional information about this free program call (212) 873-1300, extension 559.

NATURAL HISTORY 95(6):81, June 1986
American Museum of Natural History

INVERTEBRATE ZOOLOGY LIBRARY TO SEWANEE

The reprint library of the late Dr. Carl Gugler was recently given to the Department of Biology of The University of the South in Sewanee, Tennessee. Dr. Gugler was a faculty member of the University of Nebraska and a long-time member of the American Malacological Union. The collection of reprints numbers about 9,000 works and includes papers on the ecology, embryology, functional morphology, and natural history of all the major invertebrate phyla with emphasis on the Mollusca, Annelida, and Arthropoda.

AMU NEWS 17(1):9, March 1986

MORTALITY OF FRESHWATER MUSSELS AFTER WATER DRAWDOWN

(From U.S. Fish & Wildlife Service Research
Information Bulletin No. 85-18, March 1985)

Water level manipulations are widely used to improve water quality and fisheries. Beginning in 1982, Sebasticook Lake in Maine has undergone a series of water drawdowns to reduce the level of phosphorus in the large eutrophic lake, and to hopefully improve the fishery. However, the summer-to-spring drawdowns have exposed most of the habitat for freshwater mussels in the lake, leaving the mussels stranded.

Of four species of mussels identified in the lake, Elliptio complanata and Lampsilis radiata were the most common. Movement rates of mussels were measured at 1-16 mm/min, but water drawdown rates were faster. With the receding water, most mussels burrowed and eventually starved. An estimated 23% of the mussels died per week following drawdown, and the lake's mussel populations have been almost entirely extirpated.

Although the presence of the mussel population would not have significantly affected the phytoplankton density in the lake, an estimated 0.04% of the total volume of the lake was filtered by mussels daily. The loss of a major component of the benthic community could have important long-term implications.

For further information, contact: Dr. John R. Moring, Main Cooperative Fishery Research Unit, Department of Zoology, 313 Murray Hall, University of Maine, Orono, Maine 04469.

AMU NEWS 17(1):9, March 1986

SCHEDULE OF EVENTS

We refer you to NOTES No. 298, pages 3 and 4, for the current schedule of conventions and shell shows. We repeat these few announcements to give you later information:

July 1-5 Joint meeting of the American Malacological Union and Western Society of Malacologists, Sheraton Hotel, Monterey, California. Contact: Dr. James Nybakken, Moss Landing Marine Laboratories, Box 223, Moss Landing, California 95039. The three symposia will be on the biology of opisthobranchs, life history of cephalopods and molluscan morphological analyses.

July 15-19 Conchologists of America at the Sheraton Yankee Trader

Hotel, 303 North Atlantic Blvd., Fort Lauderdale, Florida 33304. Cut-off date for C.O.A. reservations special group rates is June 24; telephone (305) 467-1111. For further information and pre-registration packets, contact Convention Chairman Ruth Chesler, 7401 S.W. 7th Street, Plantation, Florida 33317, telephone (305) 791-5909.

August 12-15 (August 4-17) The North American Paleontological Convention will be held at the Museum and Department of Geological Sciences, University of Colorado, Boulder, from August 12-15. Prior to the meetings, from August 4-11, field trips will be conducted to various Cretaceous, Jurassic, and Tertiary locations. After the meeting, on August 16-17, museum collections will be available to interested parties, and workshops will be held. Among the meeting topics is a half day on "Current Problems in the Paleobiology of Bivalves," organized by T. Waller of the Smithsonian Institution. Registration forms are available from R. T. Bakker, Museum Annex, Hunter Building, Campus Box 315, University of Colorado, Boulder, Colorado 80309-0315.

SHELL SHOWS

August 1-3 The Jacksonville Shell Club will hold its 22nd Shell Show at The Jacksonville Beach Flag Pavilion, 101 North Second Street, Jacksonville Beach, Florida 32250. For information, contact Norma J. Bulock, Chairman, 10960 Beach Boulevard #413, Jacksonville, Florida 32216, phone 904:642-5840. For motel reservations (Ramada) and/or banquet reservations, contact Donald C. Campbell, 3895 DuPont Circle, Jacksonville, Florida 32205, phone 904:388-8340.

October 23-25 The North Carolina Shell Show, Wilmington, North Carolina. For information, inquire of Renate Wittig Skinner, #49 Quail Ridge Road, Greenville, North Carolina 27834, phone 919:756-7652.

HIGHLIGHTS OF THE APRIL MEETING

The 345th meeting of the New York Shell Club was an annual auction and social meeting, and was held at the Broadway Dance Studio, Astoria, Queens on April 13, 1986, courtesy of our member Dorothy Jensen who generously donated the use of the premises.

Ample time was allowed for examining the material to be auctioned and the array on the sale table. Auctioneer Marty Gill, assisted by Sol Weiss and Chuck Lindsay, put his first item up for bid at 1:55 p.m.

Among the most notable items, and the bids they inspired, were: a color series of 28 *Liguus fasciatus*, $65; *Voluta arausiaca*, $55;

five Spondylus americanus, $36, $30, $26, $29, $12; Spondylus princeps, $22 and $18; Murex motacilla, $20; Charonia variegata, $17; Cardium pseudolima, $17; a red and black urchin from Thailand, $17, and a necklace of urchin spines, $16.

With the resumption of the auction following a break, Lyropecten brought $46 and, for a small one, $30; Voluta mirabilis, $25, and a small Syrinx aruanus, $18.

As in the past, Al Scarpetti, who is a commercial artist, donated examples of his talent – this time, four guache and ink collages that brought $100, $40, $25, and $20. Arlene Reimann also created and donated a piece of art – a grouping of shells done in ink and color. It drew a top bid of $40.

The raffle prizes were a gold clip in the shape of a scallop, won by Frank Nelson; Cassis cornuta, won by Nancy McTiernan; a piece of coral, won by John Bockelmann; shell ear-bobs and a snail brooch, won by Lucky John, and Spondylus americanus, won by V.P. Carol Lindsay.

Nick Katsaras came away with the door prize, a Cymbium broderipi.

The sale table, under Frank Nelson, was heavily stocked and was heavily patronized.

Another popular area was the table where wine, cheese, cookies, cakes and other snacks were set out for our pleasure.

Milton Werner, Recording Sec'y

HIGHLIGHTS OF THE MAY MEETING

Treasurer Theta Lourbacos noted that Mathilde Weingartner's absence from the April social and the present meeting was due to a leg injury. Mary Anne added that Al Scarpetti had been in touch with Tillie, and learned that her trouble was a pinched nerve. Al will illustrate a get-well card for her that members can sign. Tillie's address is: 17 Amelia Court, Staten Island, New York 10310 — for those of you who would like to send individual cards.

It was reported that the nominating committee had learned that most of the officers will again accept nomination, but that Mary Anne would not be able to resume the presidency, and that there is no candidate for the position at present. Mary Anne said that she would serve as program chairman, thus making the president's job considerably easier.

Mary Anne thanked Theta Lourbacos and Carol Lindsay for their work in preparation for, and during, the April auction meeting. Edna Christensen noted that she had sent thank-you letters to the several shell dealers who had donated shells to the auction. Nick Katsaras noted that there had been some rather rare shells on the sale table; the problem lay in not having enough time to have a knowledgeable person assess the material.

The speaker was David DeLucia, of Ellenville, New York. He is an amateur collector who specializes in Latiaxis, his subject for the day. He noted that he had started collecting when he was 11 years old, and living in Connecticut. Eventually he began trading, and then buying, shells. He began specializing in Latiaxis about eight years ago. He said that it has been increasingly difficult and expensive to collect Latiaxis – or, more accurately, shells of the family Coralliophilidae. Of perhaps 140 species, only about 60 are obtainable today. Many species live at considerable depth, and embedded in coral. In recent years, the Filipinos who set tangle nets to gather specimens have quit because of stealing from their nets. The cessation of dredging off the coast of Florida is another factor.

David noted that the genus Latiaxis has been split until now it includes only few species. Certain species formerly considered to be Latiaxis, and others that had been placed in Coralliophilidae, were found to have radulae and thus have now been placed in Muricidae.

David showed about 100 excellent slides of shells in the family Coralliophilidae, which is represented world-wide.

Mary Anne introduced Ira Nadborne, who is working in the Museum with Walter Sage for the period of a year.

There were three door prizes: Latiaxis gyrata, Latiaxis pagoda, and Euphyllon cervicornus.

Milton Werner, Recording Sec'y

SEASHELL TREASURES of the Caribbean

text and photographs by Lesley Sutty (under the editorship of R. Tucker Abbott). Natural History/Collecting; 128 pages, 138 color plates, 7 1/2 x 9 3/4" cloth. Dutton, New York, May 1986. Special distribution by American Malacologists, P.O. Box 2255, Melbourne, Florida 32902, price $22.95 plus $2.05 for postage for numbered, autographed copy. New England distribution center of American Malacologists, Box 1192, Burlington, Massachusetts 01803 introductory price $21.95 postage free (Massachusetts residents add $1.10 per book for sales tax).

"No book about shell collecting has entranced and excited the world of conchology as has this stirring, personal account of scuba-diving and dredging for the beautiful seashells of the Greater and Lesser Antilles. Over one hundred elusive species are described and illustrated in full color. Lesley Sutty tells us where and how she finds all these rare shells." —R. Tucker Abbott

From: Publisher's Announcement, American
Malacologists, New England Division

THE DISTRIBUTIONS OF THE NATIVE LAND MOLLUSKS OF THE EASTERN UNITED STATES

by Leslie Hubricht. Fieldiana: Zoology, New Series, No. 24, June 1985. Publication No. 1359, Soft cover, 191 pages, 523 maps, Price postpaid $23.00. Available from the Field Museum of Natural History, Division of Publications, Roosevelt Road at Lake Shore Drive, Chicago, Illinois 60605-2496.

Every species and subspecies of the native land mollusks recognized by Hubricht has a map showing all county records plus a summation of systematically important literature records, notes on occurrence, and remarks on variation.

From: Publisher's Announcement,
Field Museum

OUT OF THE MARKET INTO THE PARLOR

Berniece G. Plummer
Rochester, New York

It was one of those hot days in late September when I chanced to pass the market window. A basket of snails (Otala lactea) from Morocco had burst their epiphragms and were climbing up the window and over the apples and lettuce, feasting on the way. The creamy beige of their shells banded with brown made them good specimens for my shell collection. For only a few cents I had twelve lively snails to take home.

I put them in the kitchen sink while I prepared dinner. Imagine my husband's consternation when he set his lunch box on the drainboard and came face to face with several snails!

We found them so interesting that, instead of boiling them for their shells, we bought a second-hand aquarium and set up a terrarium. Aquariums can be bought for half-price if they no longer have a seal tight enough to hold water for fish. A layer of gravel with a few pieces of charcoal were laid on the bottom and covered with humus. A word of warning: be sure to use humus from the woods and not humus that has been bagged with insectide added to it.

In order that the terrarium might be covered with a glass lid, we added several growing plants for oxygen, and moss to hold the moisture. We also placed a jar of water in one corner, covered with a piece of nylon stocking held by a rubber band. We sprinkled the ground just enough to make it moist but not wet. Helix snails like the sun, so the terrarium was placed near an east window.

By trial and error we found that they would eat banana, apple, avocado, cucumber, mushroom, watermelon, lettuce, spinach, cabbage leaves, cantaloupe, and tomato. A special treat proved to be moldy tree leaves and pea vines. It was necessary to sprinkle bone meal or powdered shell over their food, otherwise they would rasp chunks out of one another's shell, and the shells would get soft. We also added plaster of Paris balls on which we rubbed calcium carbonate twice a week.

We learned that we could go on a two-weeks vacation and leave our snails unattended if we did not leave food in their tray and if we added a larger jar of water to maintain the humidity.

When they are mating, the foot ripples and furrows into many shapes. Fourteen days after copulation, the female laid about fifty eggs during a 24-hour period. She thrust her foot down deep into the humus and blew the tapioca-shaped eggs out of the genital pore, one at a time. The first eggs were nearest the top of the soil, while the last eggs were at the bottom, until the whole mass looked like a cluster of tiny gelatine grapes. She then smoothed the soil over them so there was no visible evidence of their location.

In twenty to twenty-four days, the eggs turned a shiny, sandy color and began to emerge as living embryos. Again this took twenty-four hours. They immediately went to the top of the terrarium. It looked as though we had shot off a skyrocket of baby snails.

When they were one year old, the flat shells began to round out and an apex protrude from the center. The second year the lip thickened, and at 2 1/2 years the lip flared back. They were two years and eight months old before they mated.

One day as I placed a tray of food in the terrarium a snail crawled under it and badly cracked his shell. There was a hissing sound as a halfteaspoonful of pallial water oozed out. During aestivation he mended his shell and added a quarter of an inch to the lip. The older snails added only 1/16 inch, while the very young added as much as half an inch to theirs.

The first year they aestivated during November and part of December, but after that they aestivated during most of March. The aestivating period was the only time that Otala lactea mended its shell.

If the terrarium became too dry, they made a parchmentlike epiphragm over the aperture. Occasionally they made a double epiphragm with an air space between the layers.

While watching them crawl across the glass and rasp at food, it was possible to see the muscle move back and forth that controls the radula. At times we could see the radula spin. They crawl across the glass at the rate of one inch per minute, but move more slowly over the foliage and ground.

These snails practically became pets. They were so accustomed to their terrarium that if they were placed outside of it during the cleaning process, they crawled up the side and dropped into the plant area. I found to my sorrow that it was a mistake to clean the inside with steel wool. Particles clung to the glass and the snails would ingest them and die.

The snails could distinguish between my husband and me. They pulled back into their shells if he held out his finger, but crawled into my hand when I held my finger near them. Like most snails, they were nocturnal and so were most active at night.

When we moved from Kenmore to Rochester, we brought the snails with us. They survived the ten hours of 28-degree temperature, and reached the age of three years before they died.

In another terrarium we have a few wood snails — Tridenta unidenta Baker — which we found at Stony Point Park last summer. They were juveniles, smooth, shiny, had no lip, and were hard to identify. Now they have developed a lip with denticles, and fine ridges on the outer shell. They live under stones and decayed leaves which they resemble so much in color that it is almost impossible to see them.

Children can have a lot of fun with Otala lactea by putting them in a polyethylene or polystyrene pan or bowl in which there is a small amount of water. The water wakes them up during the day and they become very active, crawling up the side of the bowl. One snail will hitch a ride on the back of another, and a third snail will hitch onto the back of the second. The third snail generally falls off when they reach the top of the bowl. They will circle the rim, one group going to the left and another group to the right. When they meet half-way around, they stop and peer at each other, then bypass, only to meet again at the other side.

Reprinted from SHELLS and Their Neighbors,
No. 23, June 1964, Redlands, California.

[Mrs. Plummer shared her snail terrarium experiences with school children who thus began to like and learn about mollusks. Her detailed report should encourage you to make similar observations.]

SPECIAL MESSAGE TO NEW YORK METROPOLITAN AREA MEMBERS ON THE COMING ELECTION OF OFFICERS

You will have noted that no nominations have been proposed for President or Vice President for the coming year. So far, the Nominating Committee has been unable to persuade members to consider these positions.

Please think about this situation in the next few days and come to the June meeting prepared to volunteer or nominate others for officers. The Club would benefit greatly by having some of our newer members (or other members who have previously not been able to give the Club much time) become more active in leading the Club and providing fresh viewpoints on its activities. Many of our long-time members have served prolonged terms as officers and activists, and some are no longer able to continue such activities. Therefore, New York Area Members, bring your suggestions to the meeting, or if you can't get to the meeting, phone one of the present officers with your suggestions. (Phone numbers are on the yellow cover sheet.)

The meeting room will be open at 1:30 on June 8th; come and help us plan for next year.

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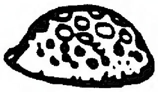

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